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COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription rates, United States and Possessions, $1.00 per year; Canada, $1.50 per year; Foreign, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

Vol. 95 **COTTON** No. 8

June, 1931

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

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Published Monthly by

W. R. C. SMITH PUBLISHING COMPANY

Atlanta, Ga.

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COTTON

Vol. 95 June, 1931 No. 8

Controlling Picker Room Humidity by Re-Circulating Air in Pickers

A COMPLETE description, prepared exclusively for COTTON by an executive of the Fulton Bag & Cotton Mills, of the method developed there of re-circulating air in pickers, and thus controlling the picker room humidity. Air exhausts from the pickers are eliminated, and definite control of the "regain" in laps, regardless of outside conditions, is provided . . . . .

DURING THE PAST several years an increased amount of thought, energy and money has been spent in the opening and picking departments of mills than had previously been the case. There are four principal things to be considered in these departments: proper opening without damage to the stock; uniform blending; cleaning; and a uniform yard-for-yard picker lap.

Much improvement has been made in dealing with the last problem, and it is one that is of vital importance to the successful operation of any cotton mill. The lap is the initial and most important step in keeping uniform cloth weights and variation of these weights is beyond the control of most carders.

The greatest cause of variation in laps is the ever-changing relative humidity of the outside atmosphere. This varies in some localities from 30 to 90 per cent within a few hours. Where a mill has no device for determining the relative humidity and making adjustments for it, or insufficient humidifiers and heating equipment in the winter to mantain constant air conditions in the picker room, they are sure to have a big variation in the finished roving.

Most carders depend upon changing the drawing to catch this variation. At best this method has very serious disadvantages. Better results could probably be obtained if the carder knew exactly when the heavy or light laps came in, but he does not know this and cannot find out, so he does the best he can by changing when he finds it, which is always too late.

Many attempt to obtain uniform weights by determining the amount of moisture in the air and making adjustments in the weight of the picker laps to compensate for the difference in moisture content. I think that this allows the human element to play too large a part.

The only way we know to maintain a constant weight is to maintain a constant per cent of moisture in the picker room, and, due to the tremendous air changes in the ordinary picker room, humidifiers alone are unable to do this. Therefore, to successfully humidify a picker room it is necessary to eliminate air changes. This may be done by re-circulating the air within the picker, which eliminates discharging air from the pickers into the dust chambers. In order to do this suitable dust-removing apparatus must be installed in the opener room so that the pickers have very little dust to remove. Re-circulating the air within the pickers does not in any way cut down the amount of motes and heavy trash taken out by the beaters in these machines.

With the thought in mind of obtaining a more even weight yard for yard lap, we developed the idea of controlling the atmospheric conditions in the picker room by re-circulating the air in the picker, as a means of controlling the amount of moisture in picker laps. In a paper prepared for the annual meeting of the American Society of Mechanical Engineers in Birmingham, Ala., Norman E. Elsas gave a very comprehensive discussion of the system, saying in part:

"The first really practical method of controlling the amount of moisture in picker laps resulted from the development in recirculating the air necessary for picker operation, *within the picker itself*.

"The idea which started the investigation of re-circulating the air in a picker began with accomplishing this in a waste machine. In one mill it became necessary to move a soft-waste machine to a new location, and a suggestion was made to put it on one of the upper floors of the mill where it could be in close proximity to the point producing the soft waste. It then seemed difficult to connect this machine in its proposed location with the dust pit. Since all the stock to be fed through the machine is free from dust and trash, it seemed possible to re-circulate the air within the machine. It was then done by mounting the machine on skids and flooring with sheet metal. In addition, since soft-waste machines are a continual source of fire, which spreads throughout the dust pit, this trouble was eliminated. This was the basic idea on which further developments were carried out.

"For the past ten years, tremendously rapid strides have been made in the opening processes, in an effort to eliminate as much of the undesirable fiber and foreign matter as is possible before the stock is fed to picking equipment. Most remarkable results have been obtained in this field; it being possible now to deliver stock that is practically free from all dust.

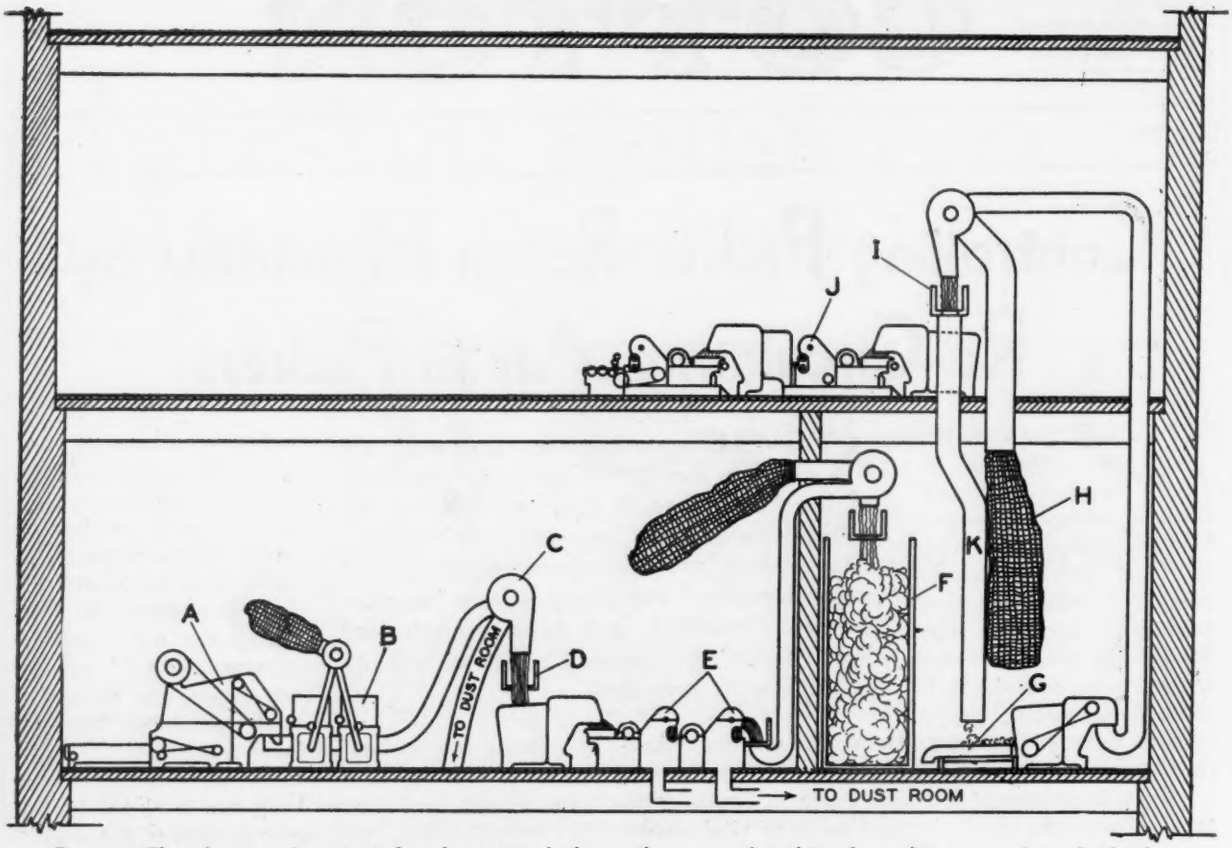


Fig. 1. This drawing (see text for description) shows the general order of machinery, and method of exhausting air from condensers. Actual machinery arrangement and scale not used . . . . . .

With the ability to eliminate dust and the heavier types of dirt in the opening processes, it became evident that the air being discharged by the fans in the final picking operations was relatively clean.

"It was necessary to experiment to a great extent to develop the proper type of baffles and air passages to insure performance in a picker set up to re-circulate its own air, equal to that obtained from a picker discharging normally into the dust pit. This has been finally accomplished, and continual watching and testing has shown the laps produced on re-circulating pickers to be indistinguishable from those produced on ordinary pickers in the same normal atmosphere.

"After equipping a complete picker room with the re-circulating device, it was then only necessary to install sufficient humidity and proper automatic control to maintain an approximately constant regain in the cotton. Satisfactory results were noted immediately, and they have been continually obtained over a period of more than two years. The necessity for continually changing the draft gearing on drawing, and subsequent operations, was immediately cut to about ten per cent in number and magnitude."

Description of System.

A fair working knowledge of our re-circulating system may be obtained from Fig. 1. It should be kept in mind, however, that the machinery is not arranged as shown by this illustration, the purpose here being to show the order of the different machines through which the stock passes and the different points at which the air is exhausted. This should give a complete picture of how the re-circulation of air is obtained in the room itself.

The cotton first passes through the bale breaker *A* and then through the Centrif-Air cleaning machines, *B*. Air from these latter machines is exhausted out into the room by passing it through a filter bag. The bale breakers and Centrif machines are located in one room, and the cotton is conveyed by means of a conveyor to the condenser *C*, located in an adjoining room. The air from this condenser is exhausted to the dust room. From the condenser *C*, the cotton passes to an automatic distributor *D*, from which it is fed to the hopper of a two-beater section picker, *E*, The air from this two-beater section is also exhausted to the dust pit, the condenser *C* and the two-beater section picker being the only two places from which the air is exhausted to the dust room.

The primary object of having the two-beater section in line at this point is to obtain as thorough cleaning as possible before the cotton is deposited in the storage bins. The calender heads of the picker have been removed and the cotton passes from the picker to a conveyor apron, and from the conveyor apron by means of a conveyor pipe to a condenser which is located in an adjoining room. It should be noted that the air from this condenser is exhausted back into the room where the condenser *C* and the two-beater section picker are located. The reason for exhausting this air into the room where the picker section is located rather than into the bin room is to prevent an air change in the latter room.

The air is re-circulated and conditioned in the

rooms in which the bins are located, but neither conditioning or re-circulation of the air takes place in the rooms where the bale breakers, cleaning machines and two-beater section pickers are located. On the other hand, an effort is made to take moisture out of the cotton in the opening processes, as it is highly desirable to have the cotton containing less than the required 7½ per cent regain of moisture when it reaches the conditioned room in which the bins are located. As cotton takes up moisture very readily, it is an easy matter to bring the cotton up to the required regain after it reaches the conditioned room.

The cotton next passes to a conveyor apron which distributes it into several large storage bins, one being shown at *F*. Humidifiers are located in the room containing the bins. They are placed just in front of the bins, and fans in the walls of the bins keep the conditioned air circulating through the bins. The humidity is controlled to give 7½ per cent regain. Some might feel that the cotton would not be properly conditioned due to the fact that the cotton in the bottom of the bins would not be affected. However, on account of cotton fibers being highly hygroscopic, these fibers take up sufficient moisture during the time the bin is being filled and emptied.

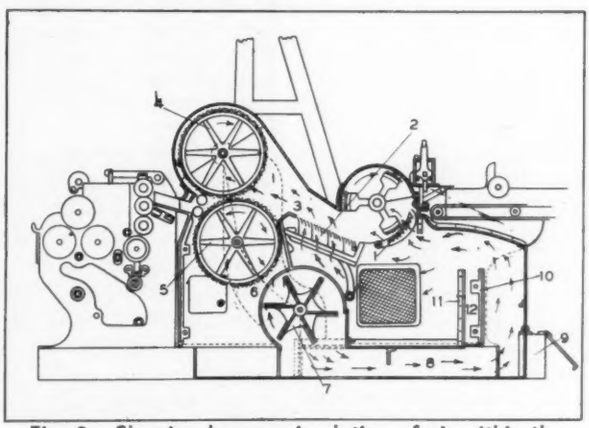


Fig. 2. Showing how re-circulation of air within the picker itself is obtained. (See text for description).

(Editor's Note: The principle of re-circulating air in a picker, as shown above, is covered in a patent issued to E. H. Rogers, under which the Saco-Lowell Shops are the sole licensees.)

The cotton is taken from the bins by hand and placed on the feeder apron *G*. It is then conveyed to a condenser in the picker room upstairs by means of a conveyor pipe. The discharged air from this condenser then passes by means of a pipe right back to the downstairs room from whence it came, and is exhausted into the room through the burlap bag, *H*. The efficiency of the burlap bag for filtering this air is very high, and the air that is discharged through it is free from lint and dust. The bags have to be cleaned periodically, but once a week has proved quite sufficient. By exhausting the air that is taken from the bin room back into this same room, a part of the moisture that is taken from the downstairs room is replaced.

From the condenser upstairs the cotton passes to the automatic distributor, *I*, which distributes the cotton to the hoppers of several one-process pickers located in this room. At the end of the automatic distributor is located an overflow pipe *K*, and when all of the hoppers reach a certain level the excess cotton passes on to the overflow pipe *K* and is returned to the feeder apron *G* downstairs. This is one of the very helpful features of the re-circulating system, as it allows the excess cotton to pass right back through the conditioned room. This insures an even feed of conditioned cotton at all times. It would be impossible to have the cotton returned by this overflow pipe if it were not for the re-circulation of air in the pickers in the upstairs room, for if conditions were such that the air from these pickers had to be exhausted to a dust room, such a draft would be created in the overflow pipe *K* that it would be impossible for the cotton to be returned in it.

We now have the cotton delivered to the one-process pickers upstairs. Right here it must be borne in mind that when the cotton reaches the pickers it has already received rather thorough cleaning, so it reaches the pickers in a relatively clean state.

By referring to Fig. 2 it may now be seen how the re-circulating effect is obtained within the picker itself. The illustration here happens to be of a finisher picker, but of course the principle is the same in any type of picker. The cotton is first delivered to the action of the beater which causes the heavier lint particles or impurities to fall through the grate (1). Then as the air current carries the cotton over the grid bars (2) less heavy particles will pass through the grids. The cotton then passes through the passageway (3) and comes in contact with the screen cylinders (4) and (5). The air current from the fan (7) will then draw dust and further lint particles through the screens, and part of this will be deposited in the bin (8) and most of the remainder in the box or compartment (9). The air current then passes on over the baffles (10) and (11) through the grids (1) and (2) into the passageway (3) to complete its cycle. A sufficient amount of dust will be removed from the air to allow its repeated use as a conveying agent within the machine.

From this description it should be apparent that this invention may be installed in any picker by the addition of the bin (8), which is formed by raising the picker eight inches in height on I-beams, the addition of the air passage (6) and the compartment (9).

Unfortunately we are not able to put our finger on all of the benefits that we have derived from the system, for, as pointed out by Mr. Elsas in his talk in Birmingham, new equipment was in process of installation in various departments at the same time the development was being accomplished in the picker room.

Another most important direct saving from the use of re-circulating pickers as explained by Mr. Elsas is "the elimination of enormous demands for heating steam during cold seasons. The heating of thousands of cubic feet of air per minute in freezing weather is no little expense. This heating also adds a variation factor to the moisture content of the cotton which must be corrected in the gearing changes later.

"Another feature of controlling the humidity in the picking department that it might be well to mention, is the necessity in most mills of transporting ot-

ton by means of a condenser from opening equipment or from bins, to the final distributing device over the pickers. This cotton has already been thoroughly cleaned in the opening processes, and the atmosphere in the room in which the bins are located may be held to a constant relative humidity. Naturally to draw air from the bin room and discharge it into the dust pit through a condenser located in the picker room itself, would constitute a loss in humidity that would have to be replenished with excessive humidifying capacity in the bin room. To prevent this, it was found that the exhaust from the condenser fan could be returned to the room from which the condenser system is fed, and the mouth of this discharge pipe enclosed in a long burlap bag.

"From the fact that the moisture content of the raw cotton can easily vary 15 per cent from bale to bale, it is clear then that some recognition should be given this by the cotton manufacturers so as to bring all stock to the same condition of "regain" prior to the picking operation. It is evident that if cotton contains more than the proper percentage of moisture that this excess cannot be removed merely in the picking operation where there is a controlled percentage of humidity approaching 7½ per cent regain for the cotton.

"Cotton fiber absorbs moisture most readily, but the rate at which it gives off this moisture is very much lower under normal atmospheric conditions, mainly because the terminal differences are not so great."

As already stated, we take out moisture in our opening processes when this is necessary. We have found the cotton to lose 3 per cent of its moisture in passing through the different opening machines. If this loss in moisture will allow the cotton to reach the humidified bin room containing less than 7½ per cent regain, then we are not bothered with having to remove part of the moisture from the cotton before it reaches the bins. On the other hand, however, if we know the moisture will exceed 7½ per cent regain for the cotton when it reaches the bins, we remove part of the moisture by means of heat in the opening room. A well humidified bin room and picker room then enables us to have the desired 7½ per cent regain in the cotton when it is delivered to the pickers.

Results.

Our system has really worked out in practice, and we have considered the results obtained very good. By tests we have run since its installation we have found that samples taken from finisher laps, a sample taken each day for several days, showed a maximum difference in moisture content of .3 per cent with the outside relative humidity varying from 34 per cent to 79 per cent. The results of the test were as follows:

Sample	Relative Humidity (outside)	Lap Regain
No. 1	34 per cent	6.7
No. 2	54 " "	6.5
No. 3	60 " "	6.8
No. 4	70 " "	6.5
No. 5	79 " "	6.8

A fairly constant room temperature is required for the successful operation of the system we are using. A temperature of 75 degrees should be maintained in the picker room, preferably by excess heating equipment automatically controlled. A temperature of 75 degrees will dry out the damp air and cotton, allowing the humidifiers to bring the regain up to the desired point. Excess humidifiers are also essential so that on very dry days the humidifiers will not run more than 85 per cent of the time.

The following tests will show just how we have been able to hold our weights since we adopted the re-circulating system:

Frame No.	Wt. of Drawing (A)		Wt. of Drawing (B)	
1	56.0 grains		56.3 grains	
2	55.9 "		56.0 "	
3	56.3 "		56.3 "	
4	55.9 "		56.2 "	
5	56.0 "	56.1	55.7 "	55.96
6	55.9 "	(Avg.)	55.5 "	(Avg.)
7	56.5 "		55.7 "	
8	56.3 "		55.9 "	
9	80.7 "		56.0 "	
10	79.7 "		80.2 "	
11	80.2 "	80.0	80.0 "	80.06
12	79.7 "	(Avg.)	80.0 "	(Avg.)

Test A was made during a period when the outside relative humidity was around 42 per cent and Test B was made when the outside relative humidity was approximately 78 per cent. The weights listed represent average drawing weights of single deliveries, taken the day following the indicated relative humidities of 42 and 78 per cent. There were no gear changes made from the dry day to the wet day. It will be noted that very little variation was encountered.

On another test that we conducted over a period of 14 days, we found the average weight of our 56-grain drawing slivers to be 56.1 grains per yard, ranging from 55.7 grains, which was the lightest, to 56.5 grains, the heaviest. A test made over the same number of days on our 80-grain slivers revealed that the average weight of these was 80.1 grains, and that a variation from 79.7 to 80.6 grains existed.

It is also interesting to note the uniformity of section beam weights resulting from uniform weights in the card room. These weights cover a period of four weeks, only the lightest and heaviest beams being listed here, as the object of the test is to show the extreme variations:

Style A (wt., lbs.)	Style B (wt., lbs.)	Style C (wt., lbs.)
493	472	465
494	473	463
495	472	464
493	474	462
499	475	465
497	472	465
497	475	464
496	475	465
495	478	469
494	476	
493	475	
495	473	
498	475	
495	475	
491	473	
492	475	
493	475	
494	473	
492		

Section beam weights as even as these, with filling of like character, will surely give better running weaving and a stronger and more uniform piece of cloth than is ordinarily obtained.

Uses and Advantages of Anti-Friction Bearings on Textile Machinery

Part One

THIS is the first part of a two-part article discussing the application of anti-friction bearings to textile machinery. It describes briefly the types of bearings applicable to textile equipment, and some of the more common applications.

It shows why anti-friction bearings have not been more generally used on textile machinery, and discusses the features which will make for a more general adoption of them in the future. The next part will describe how these bearings are applied and for what machines they are most suitable.

THE ANTI - FRICTION BEARING, which was developed principally to meet the requirements of the automotive industry for a compact, high capacity bearing with a low coefficient of friction, has been very generally adopted by many makers of industrial machinery, and while the textile industry has lagged somewhat behind other industries in its use of anti-friction bearings, it has used them to a considerable extent, and will use them much more freely in the future.

Anti-friction bearings have so much to recommend them to the makers and users of textile machinery that a discussion of the possible uses of these bearings, their advantages—and some of the reasons why they have not been more generally used—should be of interest to all who are hoping for better machinery that will lower the cost of manufacturing.

True anti-friction bearings are of two general kinds; ball bearings, and roller bearings. The distinctive feature of all such bearings is that they substitute rolling for sliding motion, and therefore have an almost negligible coefficient of friction. Furthermore, the losses due to friction increase very little with increasing loads, so that there is almost no power loss with high grade anti-friction bearings as compared with the best types of plain bearings. This fact has caused a great many persons to think of anti-friction bearings in terms of power saving alone, and to reject the idea of using them where no considerable saving of power is possible.

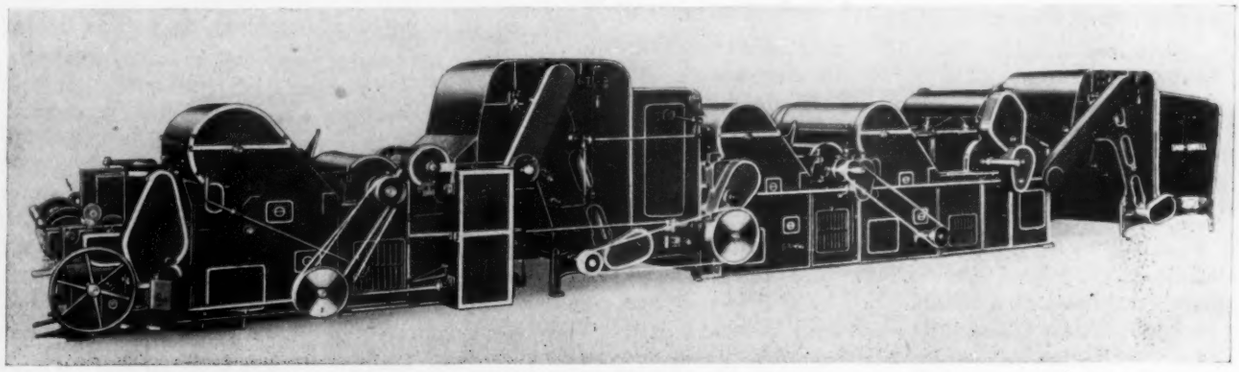
While the power saving possible with anti-friction bearings is very important in some cases, in the large majority of the applications of these bearings to industrial machinery, the matter of power saved is one of the least important considerations. There are a great number of advantages in the use of anti-friction bearings that may easily outweigh the value of possible power savings.

Unless an anti-friction bearing is overloaded, it practically never wears out, even after many years of service. There are thousands of ball bearings running on picker beaters today that have been in service day and night for ten to fifteen years, and show virtually no wear. This not only reduces maintenance costs, but on many machines will permit of more accurate settings being maintained than are possible with plain bearings. Card cylinders, lickers-in and doffers will hold settings almost indefinitely where anti-friction bearings are used. Size rolls on slashers, having to carry the heavy squeeze rolls, will wear badly in shaft and bearings, and cut out the stuffing boxes, so that size leaks out on the floor. Anti-friction bearings used on size roll journals will permit of keeping stuffing boxes tight with very little attention.

Absence of Wear.

The old-fashioned trunnion mounting for slasher cylinders was not only hard to pull, but cut the journals badly, and let the cylinders get out of line, as one journal was often worn differently from the one on the other side. This stretched the selvage on one side of the warp. Anti-friction bearings here will stop all wear, and keep cylinders lined up permanently.

Picker beaters, fans of all kinds, card comb boxes and many other high speed parts will vibrate excessively if their bearings are even slightly worn. This vibration is often injurious to the machine and its



Thirty-two principal bearings in this modern picker require lubrication only once in three months instead of twice a day. 4,800 oilings saved every three months through the use of anti-friction bearings! These bearings also reduce the power consumption, and will practically never need any maintenance. . .

product. Anti-friction bearings eliminate this vibration, as they never get loose.

A most objectionable feature of wear in plain bearings is that the worn-off particles of metal accumulate in the lubricant and make it unfit for use, so that wear makes more wear, and shortens the life of the bearing. Thorough cleaning of all bearings at proper intervals is almost impossible, and is a dirty and difficult job at best. A properly-housed anti-friction bearing will run almost indefinitely without washing out, and without fouling its lubricant.

Infrequency of Lubrication.

An anti-friction bearing will generally use less than five per cent of the lubricant needed for a plain bearing. This is not only an enormous saving in the actual cost of the lubricant, but effects a great reduction in the cost of oiling labor. I recall a case where an outlay of about $1200 in a picker room permitted laying off an oiler, which resulted in more than a 50 per cent annual return on the investment in this single item.

Also, where machines have to be stopped to oil certain parts, this reduction in the frequency of oiling adds to the efficiency of the machines. One of the worst places to oil in a cotton mill is the line of spindle steps on the roving frame. These should be oiled about twice a month with the ordinary steps, but where ball bearings are used the oiling is done three or four times a year.

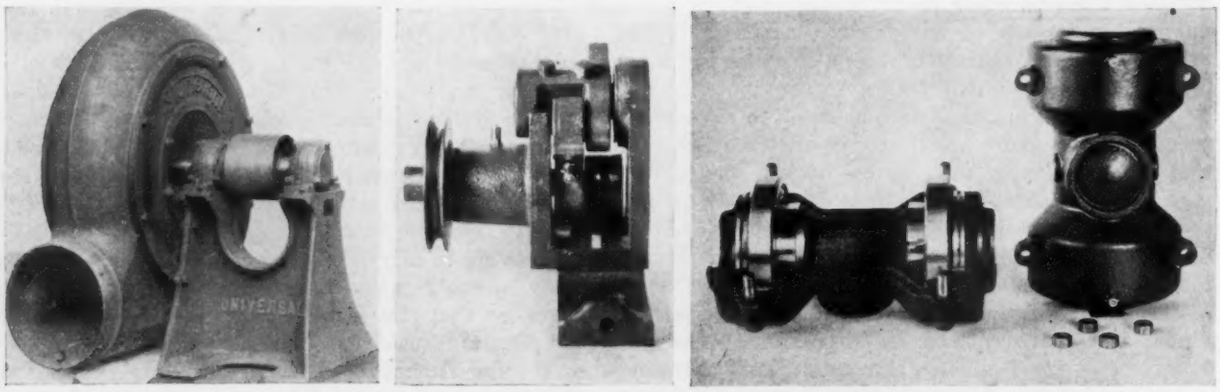
Ball bearing top rolls on roving and spinning frames require very little lubrication, and save a great deal of oiling time. A roving frame horsehead equipped with anti-friction bearings would run for months with one lubrication.

Freedom from Leaking.

This is a very important matter in cotton mills, as oil is damaging to the product. Anti-friction bearings should not give trouble with leaking if they are properly mounted, and as the lubricant generally used is a light grease, or semi-fluid lubricant, the danger of leaking, or of spilling lubricant when filling bearings is still further minimized. Anti-friction bearings on line shafting in weave rooms and cloth rooms will often pay a good return from this feature alone.

Ball bearing comb boxes on cards will eliminate the objectionable leakage so often experienced with the plain boxes. Anti-friction bearings on picker beaters will keep oil out of the work at that point. On cards, they prevent oil from getting on the licker-in and gumming up the wire, and also keep oil off the clothing, which is seriously injured by it. On the press roll mounting of a slasher, anti-friction rollers will completely eliminate danger of oil stain on warps.

Where belt drives are used, anti-friction bearings in loose pulleys will often double the life of belts by keeping oil off of them. By reducing the amount of oil leakage on the floor, there is less danger of attendants slipping and falling into machines. Many mills have had cases where an oily spot on the floor has cost a life, or at least the loss of a limb. Furthermore, oil on the floors greatly increases the cost of scrubbing, both in labor and in scouring powder; increases the quantity of oily sweeps, and adds to the fire hazard.



Left, exhauster fan equipped with anti-friction bearings, will run several months on one greasing. Center, all ball-bearing comb box (cover removed) runs clean with little lubricant applied every three months. Right, simple ball-bearing mounting for line shafting, ordinary type bearing used, easy to install.

Ease of Starting.

Since anti-friction bearings oppose almost no resistance to turning, the starting load on a machine or a line of shafting is greatly reduced by their use. On tight-and-loose-pulley drives, this reduces the wear on the belts in starting. On motor drives it may sometimes permit using smaller motors, as well as lighter belts.

Ease of Replacement.

Except on line shafting, anti-friction bearings are usually very easy to replace in the few cases where failure occurs. When a plain bearing fails, the machine generally has to be shut down for the shop to work on it, as the shaft and the bearing usually wear out together. With the anti-friction bearing, the shaft and the housing are hardly ever injured, and the new bearing can generally be put in service in a few minutes by one of the fixers in the room, with almost no loss of machine time, and at no cost except for the bearing itself.

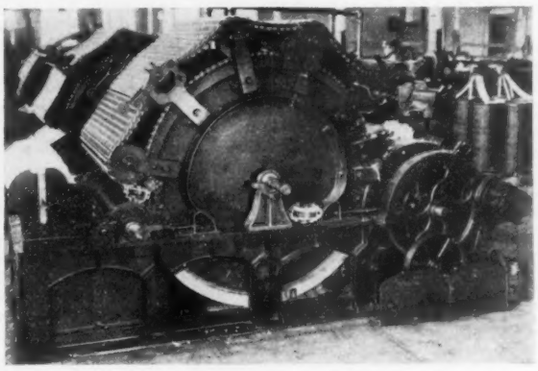
In an ordinary bearing, there must be enough surface between the bearing points to reduce the pressure to the place where lubricant can be retained between the moving points. This frequently means that large shafts and long bearings must be used. With anti-friction bearings, the use of high duty steel permits the same load to be carried in a fraction of the space required for plain bearings, which in some cases saves floor space. On individually driven spinning frames, motors and outboard stands fitted with anti-friction bearings will cut from six to ten inches off the space otherwise required.

ACKNOWLEDGMENT.

The illustrations used with this two-part article on the use of anti-friction bearings on textile equipment were furnished through the courtesy of the following concerns: Saco-Lowell Shops; S K F Industries; Aldrich Machine Works; Fafnir Bearing Company; Marlin-Rockwell Corp.; B. F. Sturtevant Company; Timken Roller Bearing Co.; and Hyatt Roller Bearing Company.

Greater Freedom of Motion.

I wish to avoid the term "power saving" as much as possible in discussing anti-friction bearings, as over-emphasis of this most obvious characteristic has retarded the use of these bearings to a very considerable extent. It is so perfectly apparent that ball and roller bearings turn much easier than plain bearings, and should save a great deal of power, that this argument was chiefly used in the early days of anti-friction bearings as a sales feature, often to the exclusion of much better reasons for adopting this type of bearing. A great many installations were made in hope of obtaining large savings through the reduction in power consumption, and so many of these were disappointing that they really discouraged many persons from investigating the possibilities of anti-friction bearings at all.



Anti-friction bearings on the cylinder, doffer, and licker-in of cotton cards not only reduce power consumption and lubrication expense, but maintain closer settings, and keep the oil off of the clothing and out of the work. . . . . .

I have also left the mention of this most apparent virtue of these bearings until the last, as I do not wish to lay emphasis on the power saving feature as being important from the standpoint of the actual dollars-and-cents value of the power saved. There are comparatively few cases where the actual reduction in power consumption through the use of anti-friction bearings will pay a sizable return on the investment, although in many cases where there is no appreciable saving in power on the basis of cost per horsepower per year, there may be great benefits from reduction in power losses that will make the anti-friction bearing investment very attractive.

If a mill has an ample supply of power at a reasonable rate, it is very doubtful if changing all the shafting and machinery in the plant over to anti-friction bearings will pay a worthwhile return on the cost. The expense of installing satisfactory types of anti-friction bearings on shafting is very considerable, as all shafts must be taken down and stripped of pulleys and couplings, which may have been in place for years, and be found very hard to get off.

There are many cases, however, where such an investment will pay enormous dividends. A mill that has increased its machinery, without adding to its power plant, may find that a sizable and expensive change in this is needed. A portion of the cost of a new power plant if put into anti-friction bearings, may make the saving that will permit the old plant to do the work, and save the cost of the bearing installation before a bearing turns over.

The same holds true for a plant that has a water power that may be gradually failing for some reason. An anti-friction installation may put off the building of a steam plant, or the purchase of electricity long enough to pay a fine return on the investment.

Likewise, the electrified plant that needs a few more machines here and there that will overload group motors may find the added power need by saving some of the loss in line shaft bearings, and by equipping machines with anti-friction bearings.

Almost any new plant can consider anti-friction bearings as a good investment, as the cost of installation is much less than in an old plant, and advantage can be taken of the possible power savings in advance. If 100 horsepower is saved in an old plant through anti-friction bearings, the only effect may be that felt in the coal pile. If 100 horsepower is cut off the requirements of a new mill, many economies can be effected in the size of the power plant, size of motors, belts, shafting, pulleys, in grouping machines, etc.

There are hundreds of places, however, where reduction in power consumption makes a machine run better, or enables a machine to do something it could not do before, although the actual value of the power saved may be negligible. The real value of anti-friction bearings is oftener not in the actual cost of the power they save, but in the superior and more economical operation of machines through their use.

A lapper will make a better, firmer lap if the calender racks are fitted with anti-friction rollers. It will make an evener lap if the apron and evener mechanism is equipped with anti-friction bearings. A slasher will operate with less strain on the warp if the cylinders are mounted on anti-friction bearings, and if the press roll is similarly mounted it will not stick and chafe the warp. If the section beams on the slasher are run on anti-friction bearings, they will run out more evenly, and there will be less waste. Mention has already been made of the mounting for the

size rolls.

The measuring roll on a beamer will measure more accurately, and make less waste at the slasher if it is mounted on ball bearings. The rocker shaft on a loom will run almost indefinitely without wear if on ball or roller bearings. Ball bearings are necessary to the operation of the packages on the Barber-Colman high speed spooling and warping system. Ball bearings in the steps of roving spindles will pay for themselves many times in the saving of oil and oiling, and making re-pointing of spindles and replacement of steps unnecessary.

Yet none of these tried and valuable uses for anti-friction bearings would ever save enough horsepower to make them worth even considering.

At the present time, probably most of the anti-friction bearings in use in cotton mills have been put in by the mills themselves on old machinery. Undoubtedly, if it pays to go to the expense of replacing a bearing on a machine that is actually in service, it must pay much better to build the machine with the improved bearing on it. Yet the builders of textile machinery have been rather slow to take up the idea of using anti-friction bearings extensively.

There are several reasons for this. The chief one is no doubt the additional cost of the bearings. Cotton mill machinery is very cheap machinery. Pound for pound, it costs less than almost any other class of machinery. A cotton card, costing about $900, will weigh as much, and take up as much space as a drill press costing $3,000. To equip the drill press with $100 worth of special bearings is not going to put its sale price as much out of line as to spend $100 for these bearings on the card.

Cotton mill machinery was chiefly developed during a period when labor was cheap and machinery dear. The idea was to keep the cost of the machinery down, even at the cost of inefficiency. The industry is getting over this bad habit of thinking, but it is taking a long time to get over it. Generally, the maker of textile machinery, when considering the use of anti-friction bearings, also had to consider the very practical fact that while the better bearings would make a better machine, they would also make a more expensive one, and raise his costs over those of his competitors. Cotton mill machinery is much more closely competitive than most other lines, as all the makers of machines for similar purposes make practically the same thing.

A 20-inch lathe can be had from one maker for $1,000, while another may get $2,000 for the same size. A drill press made by one firm goes for $500, while another maker of the same sized press may ask $1,500. A five-ton truck may cost from $1,500 to $4,000. A watch, guaranteed to keep railroad time, may sell from $25 to $500, or more. But nobody ever heard of a cotton mill machinery maker who got twice as much for his cards or his spinning frames as his competitor did. Then, since there is so little price spread between different makers' machines, each one had to be very careful about apparent improvements that might put his prices out of line.

Most of the demand for better bearings in the past has come from the purchaser of the machinery, and most of the extension of the use of superior bearings is going to have to come from the same source. The history of anti-friction bearings in the textile field has usually been that the mills found that these bearings were better for certain purposes, and insisted on getting them. In future, if mill men have a better understanding of the benefits to be had from ball and roller bearings and become more insistent upon them, they will get machinery equipped with better bearings. This may often increase the price of machinery somewhat, but the money will be well spent. Do not blame the machinery man too much for his backwardness in this direction, for, as just pointed out, competition has made him over-cautious.

The time will eventually come when textile machinery will be equipped as a matter of course with anti-friction bearings at all important points, and the sooner that time comes the better it will be for all concerned. Its coming can be hastened by an interest on the part of buyers of machinery in getting the utmost in machine efficiency and dependability.

It has not been long since the use of ball bearings on the beaters and fans on cotton lappers was practically the only application of anti-friction bearings known in cotton mills, and the makers of these machines were generally opposed to the use of such bearings on them. Now, there is not a picker made in the world, so far as I know, that does not come equipped with ball bearings on these, and other parts. It is a question of education. The manufacturer is willing to put better bearings on his machines if the customer will pay for them.

(This is the first of two articles on this subject. The second will appear in an early issue, and will discuss specifically and in detail all of the applications of anti-friction bearings to textile machinery, discussing some future possibilities; and will also describe the various types of bearings available.—The Editor.)

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Trends in Textile Mill and Village Construction and Labor Methods

By Cherry L. Emerson
Vice-Pres. and Chief Engineer, Robert & Co., Inc., Atlanta, Ga.

(Continued from May Issue of COTTON.)

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THIS continues the discussion of trends in the cotton-textile industry, as prepared by Mr. Emerson for the annual meeting of the American Society of Mechanical Engineers in Birmingham recently.

In the accompanying discussion, the recent major developments in building construction, village housing and construction, and the present situation as to the proper assignment of labor to jobs, are covered.

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Buildings.

The fire hazard in processing cotton is ever present, as the blanket of fine filaments is highly inflammable. The mill is required not only to provide automatic sprinklers throughout, but also to use slow burning, or fire resistive, construction. The latter requirement for many years was successfully met by the so-called "standard mill construction" using heavy wooden columns and beams.

Beginning some fifteen years ago, two trends came into play, effecting building construction. One had to do with the substitution of more imperishable materials for wood; the other with providing better working conditions for the employees.

It is unnecessary to catalog the various steps in this progression but considering present practice, we find cast iron pipe or structural steel columns in place of wood. The difficulty in obtaining large wooden timbers of long leaf pine has led to the substitution of steel beam, or beam and girder construction. Steel sash is now almost universally used. Concrete has also had a share in replacing wood and, to some extent, brick in foundations, column footings, window sills and lintels, stairways, platforms, floors in exterior towers, etc. Wood is retained only for floors and roof plank. Its resilience and economy as compared to concrete keeps it in favor here. Even for this planking, however, the quality is slowly deteriorating and various forms of treatment are being used, such as zinc chloride impregnation.

Great improvements, particularly in the last few years, have been made in the conditions under which labor performs its tasks. Column spacings have been extended from eight to twenty feet. Ceiling heights from ten feet to seventeen feet. This gives an opportunity for large windows and in certain modern mills 58 per cent of the side wall area is glass. The natural lighting is most excellent and ventilation has been improved. On upper floors it is customary to provide large monitors which still further help the circulation of air. In one story weave sheds and in finishing plants, saw tooth construction is frequently used which, while somewhat costly, is particularly advantageous for both light and ventilation.

The sanitary conditions have undergone a change for the better. All toilets are now housed in outside towers which also contain washrooms, and in some instances locker and rest rooms. These towers contain no wood. Their concrete floors, tile walls, and steel partitions permit the entire area to be washed down with a hose. One of the greatest contrasts between the old time mill and the new is the cleanliness of the latter. The interior is painted white and usually kept so. Lint and other waste is kept off the floor. Particularly dusty areas such as card rooms are cleared by vacuum devices. As a whole mill interiors are pleasant and sanitary.

Certain minor improvements are being made. A group of these concern the elimination of difficulties of condensation. High humidities must be carried in certain departments and during cold weather the condensation on roof and the large glass areas of sidewall cause water drip. Roof insulation is being more frequently used, although no entirely satisfactory material is yet available for this purpose. A subsidiary advantage of insulation is the protection from the hot summer sun.

Condensation on the glass sidewall requires gutters in the sill and a drain pipe system.

Another difficulty introduced in some mills by large glass area is that of glare. Here actinic glass has had a useful field, as it materially reduces the heat as well as the glare transmitted while reducing only slightly the admission of light. In this connection another new form of glass is now on the market which admits a considerable proportion of the ultra violet rays excluded by ordinary glass. These rays have certain therapeutic properties and if tests being carried on show appreciable improvement there will be a wide use for this type of glass.

The most recent development has to do with an increased demand on the part of many owners for architectural excellence as well as engineering correctness in their structures. There is little return on money spent for extravagant exterior decoration, but pleasing results can be obtained by proper handling of proportion and fenestration, and at low cost. In two recent plants additional expenditure of a fraction of one per cent produced quite satisfactory exteriors in which both management and employees may take pride.

The trend toward the use of structural steel may result in the future in its substitution for the present brick bearing walls. The curtain walls surrounding the sash may still be of brick, or if the cost of labor or material for brickwork advances, a substitute may be

found in hollow wall faced on the inside and outside with cement blown in place from a cement gun. The rapid advance in the welding art may result in this form of connection particularly if some satisfactory method is found for investigating the strength of the weld after completion. This hypothetical development will require from the engineers a complete redesign of the details at connecting members to take best advantage of welding.

Village Housing.

There may be some major change in the design of buildings to conform to new types of machinery not yet visualized, but the changes seem to be against it and apparently the curve of change in building is flattening out. There will undoubtedly be many improvements in details, particularly in those affecting the comfort and well being of employees.

A peculiarity of the textile industry, particularin the South, has been that each development required the construction of a small city to house its employees.

In recent years most of the new plants have been located South and in the smaller communities. In such places only a few vacant houses are ordinarily available, so unless the owner was willing to wait until some real estate operator should build cottages, he had to do it himself. Further, if the matter of housing had been left to outsiders, the help would have been subjected to high rents and lack of desirable utilities, while the owner would have had no control over the situation.

The village is not a profitable renting venture. As a rule, the rental is about fifty cents per room per week, or about $9.00 per month for a four room cottage. With the house, is given free, the unlimited use of water and electricity. One particular village of our acquaintance on such a basis returned 3 per cent on the investment after deducting maintenance, and the cost of water and light. This was without depreciation, which—at 4 per cent—converted this construction into a losing investment. The excellent housing obtained by the workers at less than the cost of providing it is to be regarded as extra compensation beyond the cash wages received.

The improvement made in the living conditions in these mill communities is, perhaps, the most striking change in the industry during the last few years. The village in early days consisted of rows of houses built as cheaply as possible, all exactly alike, and all painted the same color, if painted at all. There were no conveniences of any kind. Modern conditions contrast very strongly with this. Not only are the cottages well built and comfortable, but the variety of appearance and the curving of streets give the impression of a moderate price city suburb.

Quite an engineering problem was presented in obtaining this variety of appearance and at the same time standardization of the materials required and the method of construction. These requirements have been harmonized so that several hundred cottages are built for one development with surprising speed and economy.

Most recent villages supply every individual house with water, electricity, sewerage and plumbing. There must also be garages for the cars of the operatives. Some or many of the following features are always included:—churches, stores, picture shows, schools, auditoriums, natatoriums, lodge rooms, gymnasiums and community houses. Street improvements, including white way systems, paving, and landscaping, are not uncommon. The miniature city is becoming quite up to date.

Cottages have usually been of frame construction although recently quite a few have been of brick veneer or stucco on hollow tile. The saving in maintenance, depreciation and fire risk of the latter types do not compensate in dollars and cents for the greater first cost. The housing development has become so expensive that an extra cost per room must be avoided. In the effort to obtain the advantage of brick construction at a cost comparable with frame, many experiments have been made. That offering the greatest possibilities for the future seems to be the use of a loose wall construction of hollow cinder concrete blocks covered and cemented together with gunite. This spraying of concrete through a hose with compressed air increases the rapidity of construction and reduces the requirement for skilled construction labor.

> "THE MOST recent development has to do with an increased demand on the part of many owners for architectural excellence as well as engineering correctness in their structures. There is little return on money spent for extravagant exterior decoration, but pleasing results can be obtained by proper handling of proportion and fenestration, and at low cost. In two recent plants additional expenditure of a fraction of one per cent produced quite satisfactory exteriors in which both management and employees may take pride." . . .

The importance of the great improvements made in the living conditions of the textile operatives can be fully appreciated by observing the corresponding improvements in the operatives themselves. The level of intelligence, loyalty, self respect, and physical well being has beeen appreciably raised. This can be observed even by a casual comparison between the employees of modern mills such as are described above and others which have been backward in improving their villages. On account either of indifference or lack of money, some few mills do lag badly behind the trend of improved living conditions. They are obtaining inferior help as a result.

Labor.

Natural gas is now being widely piped through the southern textile region and eventually the price may be reduced to a point where it can be purchased by the mill at wholesale and used by the families for heating and cooking to replace the present use of coal stoves and open fireplaces. When this becomes a fact, the mill employees will have all city conveniences.

Scientific method and technical study has now provided the industry with excellent machinery and with buildings and auxiliary services which afford satisfactory conditions for its efficient operation. It is only within the last few years that the same methods have been directed toward improvements in the human ele-

ment in mill operation.

Other industries have pointed the way, but textiles have lagged behind on the plea that scientific management could not produce for it the results obtained elsewhere. Some mills, however, have had the energy and courage to pioneer in this field and the results have been most encouraging. One plant, after instituting a thorough study and reallocation of the tasks of its operatives, was able to reduce the number on the payroll by 35 per cent, while those remaining increased their earnings by 25 per cent. In one department, the average hourly earnings increased from 26 cents to 34 cents. This represents a long step toward the goal of all intelligent mill owners, that is, a lowering of the cost of labor per pound of product and at the same time an increase in the wages of those employed.

Textile Labor Assignment Is Being Studied from Two Major Angles.

Heretofore, the tasks of labor have been assigned either according to precedent or at the direction of a superintendent who had no proper data on which to base his opinions. The result has been that some operatives have had more than they could do, but the great majority have been working far below capacity.

Textile has been known as a low wage industry. It has also suffered, particularly in the South, from a high labor turn-over and from a considerable amount of voluntary absenteeism. The latter condition has necessitated a large force of spare hands whose presence has increased the overhead cost of village operation.

The labor problem is being studied from two angles. One group approaches the problem primarily by way of the machine and the other purely by way of the human element. The first group makes a comprehensive study of machine settings, including twists and drafts, and compares these with data carefully accumulated on other successful plants. Corrections are then made where necessary. All subsidiary services are studied so that production may take full advantage of the best conditions of speeds, humidity, light, and so on. Beginning with the opener room, all processes are restudied and set so that the final process, say weaving, may have the benefit of the best possible yarn. There is also set up a schedule of machine inspections which is designed to locate and eliminate sources of breakdown before the stoppage occurs.

Having effected these various improvements the tasks of the operatives are extended. A man who has been operating forty machines may be given sixty. The improvements are explained to the help and they are supposed to receive an equivalent increase in pay for extra work done. These matters are most important in securing their willing co-operation on the basis of a square deal for both men and management. Incidental to this is the use of the multiple system which merely delegates easy tasks requiring no great skill or intelligence to low paid helpers, thus relieving the skilled workers and permitting them to tend more machines.

The second group leaves the matters of machinery and its settings to the management and focuses its attention on labor alone. An exhaustive time study is made of the operations involved in each process and a standard of performance is set up as a yardstick to measure acceptable or average work. With these standards as a basis, rates are set up and bonuses are provided for those who exceed them. Inherent in this plan is the minimum wage at the standard rate for those who cannot even reach the easy requirements. It devolves on the management to replace those who cannot in time attain the standard. Most bonuses are based on production, so that pick counters, hank clocks and other measuring devices are required. The supervising forces are drawn into the plan by bonuses based on the combined production of the direct labor under their supervision.

This wage incentive plan has had a marked effect in increasing the interest of the operatives in keeping their machines tuned up and in production as constantly as possible. Even card rooms have shown a large increase in output after the installation of a bonus system. The superintendent and the foremen are prompted to become teachers of the help, interested to improve their efficiency.

Many mills are thinking along the lines of improved labor efficiency. Some are making definite efforts either with or without outside assistance. The main emphasis may be on the study of processes or the men themselves, shading from complete absorption in the one or the other to a balance between them. Both properly applied are beneficial to the mill but it is also true that obtaining efficiency from machinery is much easier than from men.

Next Great Trend Will Be in Humanics.

The next great change in the industry will probably have to do with this human element rather than with equipment or buildings. We have noted many factors which are reducing the number of operatives required in a plant of given size. This reduction permits more study and effort being expended on those remaining. The better living and working conditions afforded by progressive mills cannot but eventually have an effect in reducing labor turn-over. It becomes profitable to train workers if their services can be retained.

These studies in "humanics" will undoubtedly include a more scientific and careful selection of those employed, a systematic program of training them not only for their particular tasks but for advancement, and also various forms of incentives, particularly wage incentives of course; to increase their interest and effort. We have unloosed only a little of the tremendous powers for industrial improvement latent in the workers themselves. The task is most difficult but on the other hand the reward is great.

A factor which may accelerate the above trend is the gradually increasing number of men in executive and managerial positions who have had engineering training and who are basically in sympathy with the scientific method. Such management will appreciate the advantage not only of great, but also small, matters such as the use of a few young technical men to continually check speeds, humidities, light intensities, and machine settings.

The Dyeing of Indigo Colors

THIS IS NOT a technical discussion for the experienced dyer, but an extremely non-technical and elementary description of indigo dyeing, prepared to interest those readers unfamiliar with the general schedule of processes used in performing this operation. The description is based upon the methods of a well-known southern plant in the dyeing of yarns for use in denims.

Articles on the subject of indigo dyeing, in all of its phases, which will appeal to and interest the advanced dyer, are in preparation, and will be published soon.

THE ART OF DYEING BLUE by means of indigo was first practiced in India before the year 1300. Indigo may be used for dyeing vegetable fibers —cotton, linen, jute—and animal fibers—wool, silk.

The dyeing is produced by the oxidation of the indigo deposited on the fiber. The three steps or stages are: the impregnation of the fiber with the vat liquor (indigo dye), the removal of superfluous liquor, and the oxidation. By repeating these steps a certain amount of dyestuff is deposited each time over the dye already on the fiber, and the shade consequently becomes darker.

Volumes could be written on this subject, but the writer will deal only with the dyeing of cotton yarns, to be made into denim cloth.

Commercial indigo is bought in about 60-gallon (460-pound) barrels, in the form of 20 per cent paste (20 pounds of pure indigo with 80 pounds of water). The chemical formula for indigo blue is $C_{16}H_{10}N_2O_2$. Indigo white is $C_{16}H_{12}N_2O_2$.

Indigo blue is not soluble in water, but indigo white is soluble in alkaline solution, hence the blue paste must first be reduced to indigo white before it can be applied to the yarns. To do this, we put the paste with water in a large mixing tank, and while agitating, add liquid caustic (NaOH) and then sodium hydrosulphite ($Na_2S_2O_4$). The reaction taking place something about as follows:

$$C_{16}H_{10}N_2O_2 + 2NaOH + Na_2S_2O_4 = C_{16}H_{12}N_2O_2 + 2Na_2SO_3$$

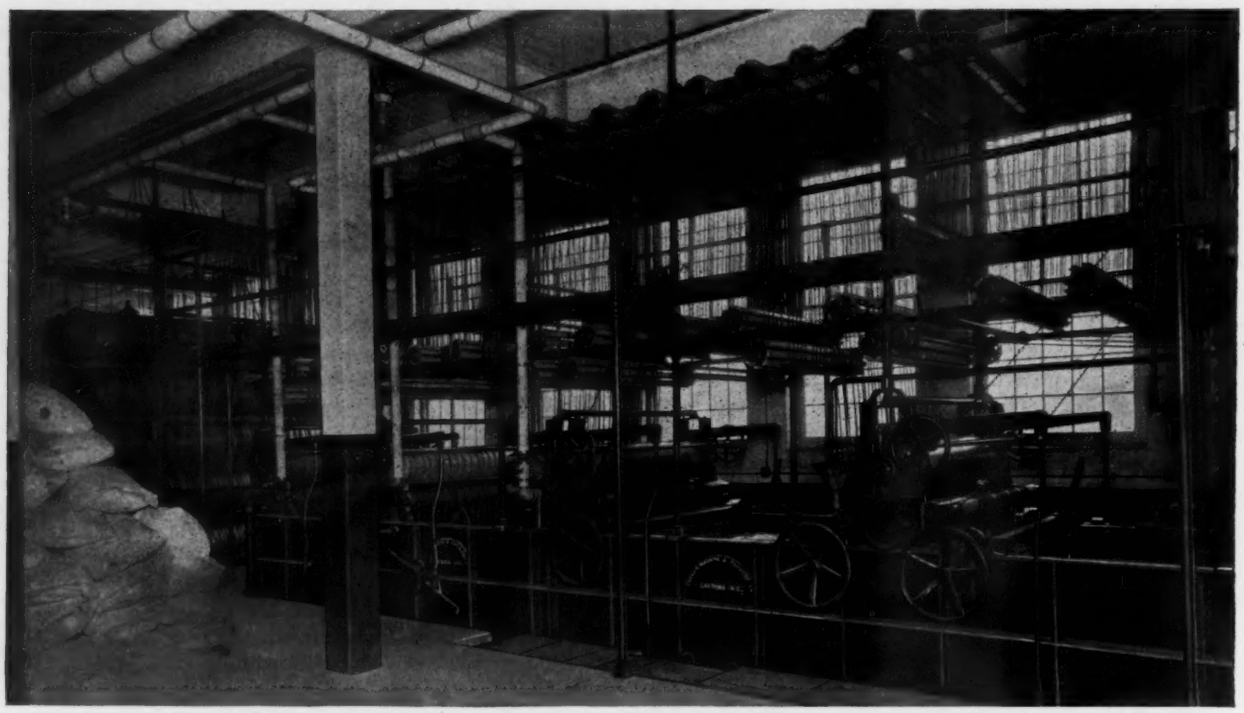
This indigo white is now ready to put in the dye vat to dye yarn.

Now, referring to the sodium hydrosulphite, this is made at the mill, by putting water in a mixing tank, and while agitating, we add zinc dust (Zn), sulphur dioxide liquid gas (SO_2), caustic soda (NaOH) and soda ash (Na_2CO_3), in the the order mentioned. The action is something as follows:

$$Zn + 2SO_2 = ZnS_2O_4$$
$$ZnS_2O_4 + 2NaOH = Na_2S_2O_4 + Zn(OH)_2$$
$$ZnS_2O_4 + Na_2CO_3 = Na_2S_2O_4 + ZnCO_3$$

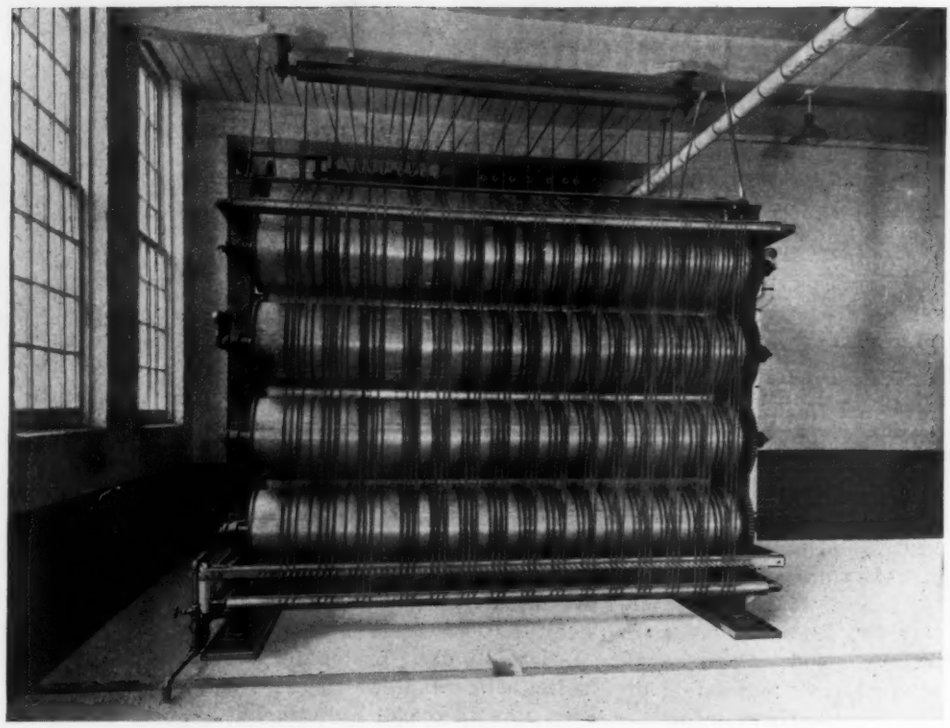
The $Zn(OH)_2$ and $ZnCO_3$ are of no value in dyeing, so by forcing the above solution through a filter press, this zinc sludge is taken out, leaving only the sodium hydrosulphite. This is used in making up our indigo white, and also is added to the dye vat as the yarn passes through in order to counteract the oxygen taken into the vats by the yarns.

The continuous dye machine used consists of a



Photos, courtesy Cocker Machine & Foundry Co.

Side view of third indigo vat and two compartment washing machines, with warps led to dry cans.



Showing warps leaving dry cans and let through ceiling to second floor to coilers in beaming room . . .

creel (to hold the balls of yarn that are to be dyed); a boil-out vat, rinse vat, four to six dye vats (according to depth shade wanted); two wash vats, and 30 to 40 steam cylinder dry cans. There are two large rubber-covered squeeze rolls on each vat, for squeezing the excess liquors from the yarns before they enter the next vat.

The balls of yarn are several thousand yards long and contain from four to five hundred threads to the ball. Usually 20 of these balls are run through the dye machine together.

The yarn first enters the boil-out vat, to which has been added a small amount of alkali. This scours the yarn, removing the dirt and natural glue found in all cotton fibers; and getting the yarn in condition for the dye liquor to penetrate the fibers. The yarn is squeezed and enters the next vat, which is filled with cold water. This washes off the excess of alkali and also cools the yarn. (Vegetable fibers are dyed in cold bath and animal fibers are dyed in hot indigo bath).

The excess water is squeezed out, and the yarn enters the first dye vat. In each vat the yarn runs around several carrying rolls, is squeezed, and runs around several overhead rolls. This is so the dye liquor on the yarn can oxidize before it enters the next vat.

$$2C_{16}H_{12}N_2O_2 + O_2 = 2C_{16}H_{10}N_2O_2 + 2H_2O$$

The oxygen in the air converts the indigo white into indigo blue. Indigo blue has no affinity for the yarns so it must be applied in the indigo white state.

The indigo vats hold about 6,000 gallons of liquor. There is a layer of foam and oxidized indigo liquor on the top of each vat. This is caused by the indigo white coming in contact with the air and oxidizing. This, however, forms an air-tight cover and prevents further breaking down of the dye liquor.

The yarns will carry some oxygen into the vats, and this would convert some of the indigo white into indigo blue, but we overcome this by the addition of sodium hydrosulphite every few minutes. We must have an excess of this hydro so it will retard the oxidation on the yarn and make a faster, more uniform shade. The yarns look yellow as they first come from the dye vat and then gradually turn green and then blue. If too great an excess of sodium hydrosulphite is used, the oxidation will not be complete before the yarns enter the next vat, and they will be streaked and uneven.

Every few minutes a certain amount of sodium hydrosulphite and indigo white liquor is added to the dye vats to replace the amount taken out by the yarns that pass through. The machine must not be stopped while the yarns are in the machine, as this would make dark uneven shades. The depth of shade depends not only on the strength of the vat, but also on the length of time the yarns are in the vat.

The other three or four dye vats which the yarns pass through react exactly like the first one just described. The yarns of course get darker with each dip or vat. After the dye vats, the yarns pass through two wash vats which are filled with water. The first one is cold and the other one is hot water. The object and purpose of these vats is to wash off the excess dye liquor which is now on the yarns.

The yarns then run over a series of steam cylinder dry cans and are thoroughly dried. They are then coiled in boxes and are ready for beaming.

Summarizing all that has been said, the object of indigo dyeing is to convert the indigo blue into indigo white; to saturate the yarn with this; to squeeze out the surplus liquor and oxidize on the yarn, which changes the indigo white to indigo blue, thus dyeing the yarn. Dyeing with indigo is very much like painting a house; the paint is put on in coats or layers, and built up to what is desired.

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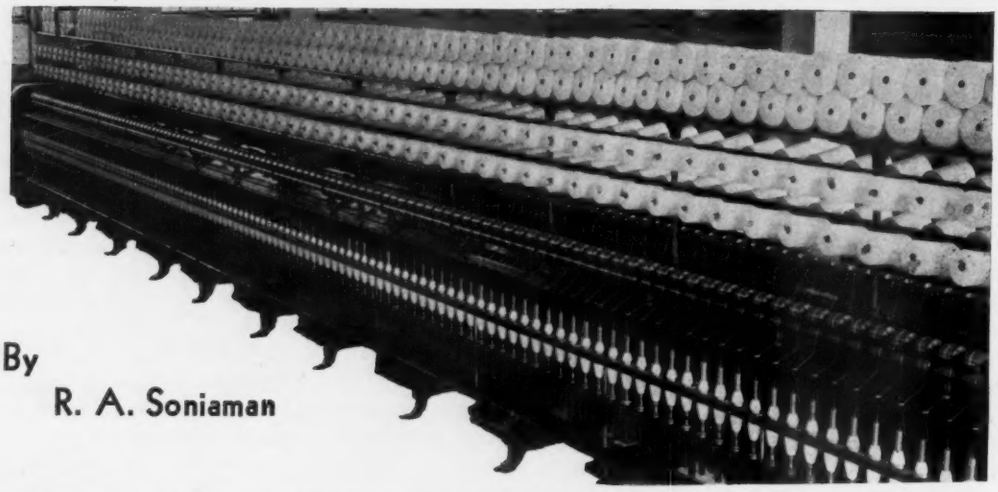
The Twisting of Fine Plied Yarn

Machinery lay-out, production, lubricating and cleaning schedules, and other pointers for a small twister room



By
R. A. Soniaman

OWING TO the increasing importance of ply-twisting of cotton yarns a discussion dealing solely with the twisting machines will, no doubt, be welcome to readers interested in the twisting of plied yarns.

An attempt will be made in this article to bring out such phases of the subject which should be of practical value. To simplify things it will be assumed that the number of spindles in the twisting room to be discussed is 15,000, consisting of 50 twisters of 300 spindles each. Also that medium counts of 2-ply are to be the chief product, i.e., 40s, 50s, 60s, and 70s.

The ring size which would ordinarily take care of these counts properly is 1¾ inches, but it would be well to have several frames with ring sizes somewhat larger and smaller than the foregoing dimension in order to safeguard the firm should there be a change from the counts mentioned to a wider range, finer or coarser, or both. Let it, therefore, be assumed that 35 frames shall be 1¾-inch rings, 10 to be 2-inch rings, and 5 to be 1½-inch rings. Such a diversity of ring sizes will give considerable flexibility to the range of counts that can be twisted.

For the sake of simplicity again, the 40s will be considered as being twisted on the 2-inch ring frames, the 50s and 60s on the 1¾-inch and the 70s on the 1½-inch rings. Production will naturally be controlled by the spindle speed and the twist multiplier used. Spindle speeds, it may be said should be thoroughly checked up to find the most suitable for each individual plant since the same speed may not be the most efficient one for all concerns. The aim of course is to get the highest speed consistent with good quality, and moderate wear and tear on the machinery. The speeds shown on the particulars sheet, Fig. 1, have given good results. On the same sheet are also given the twists to be inserted for each count, these twists being obtained by using a blanket multiplier of 4 times the square root of the counts of the plied yarn. For example, in 50s, the count of the plied yarn would be 25 and the square root of this figure is 5, which when multiplied by 4 gives 20, the twist.

With these figures settled upon, the delivery of the bottom roll can be computed from the spindle speed and the turns per inch, and from the delivery the production can be calculated. It is always advisable to get the actual roll speed as soon as possible and check the delivery as against the figure obtained by dividing the spindle speed by the twist inserted, a method which, however, can be used to advantage in tentative lay-outs.

The productions shown in Fig. 1, are based on a 50-hour week, and a blanket efficiency of 90 per cent, a figure which by the way, should be readily attained, and in some cases may be surpassed.

The question as to whether to put spools or tubes of yarn in the creels of the twisters can be readily disposed of in favor of the tubes on account of the larger and better built package possible with the tubes. Obviously, the larger the tube or cheese that can be put into the creel and drawn off without the end breaking, the less the creeling will be, and the smaller the number of knots put into the product. A 6x6-inch parallel tube makes a fair package for the counts and ply under consideration. Construction of creel, however, on some frames may make 5x6-inch advisable for 70s.

The cheeses should be 2-ply as this method simplifies creeling, and eliminates the possibility of single, a fault that would be more or less prevalent where 2 single end tubes run to one spindle bobbin. Especially as stop-motions have as yet not proved sufficiently satisfactory to warrant complete installations of such devices.

Unless a knotless product is required, creeling should be done on the so-called staggered method,

that is, the tubes should be of broken sizes in the creel so that the number of tubes creeled will be spread out uniformly each day. The theory of correct creeling is that only one tube will run out at a time; in actual practice, of course, this is not possible. An alert twister tender will watch the emptying tubes on her rounds and will get in readiness to remove a depleted tube when only a few coils are left, tying the end of the fresh tube to the tail of the empty one in such a manner that no production is lost and without any depreciation to the qualtiy of the yarn. The yards per tube, the running time per tube, and the approximate number of tubes creeled per frame per 50 hours based on 90 per cent efficiency of the twisters are shown in Fig. 1.

DETAILS				
COUNTS	40	50	60	70
PLY	2	2	2	2
SPINDLES PER TWISTER	300	300	300	300
NUMBER OF TWISTERS	10	20	15	5
TOTAL SPINDLES	3000	6000	4500	1500
SIZE OF RINGS	2"	1¾"	1⅝"	1½"
SPINDLE SPEED R. P. M.	6000	7200	7200	8000
TWIST PER INCH	17.89	20.00	21.91	23.66
EFFICIENCY OF TWISTERS	90%	90%	90%	90%
SIZE OF TRAVELER	17	17	18	19
ROLLER DELIVERY IN YARDS PER SPINDLE PER HOUR	503	540	493	507
TOTAL PRODUCTION IN POUNDS 50 HOUR WEEK	4490	7700	4400	1290
DIAMETER OF TUBES IN CREELS	6"	6"	6"	5"
YARDS PER TUBE	36000	45000	54000	39600
RUNNING TIME OF TUBES IN CREELS	71 HRS.	83 HRS.	110 HRS.	78 HRS.
TUBES CREELED PER FRAME, 50 HOURS	210	180	135	190
RUNNING TIME OF SPINDLE BOBBINS	5⅞ HR.	7⅞ HR.	9 HR.	7 HR.
TOTAL BOBBINS DOFFED, 50 HOURS	26100	38800	25000	10700

Fig. 1.

Much of the success of efficient working of the twisters depends upon the selection of the proper traveler and the care given it during its life. For the counts in question, wet twisted on rings of ⅝-inch band, and at the spindle speeds already indicated on the particulars sheet, Fig. 1, the sizes of bronze travelers as shown on the same sheet have given good results. So many factors, however, affect the traveler that a change of a half size either way may be necessary from the listed sizes. Only an actual trial will disclose the best size to use.

Likewise, it is difficult to accurately anticipate the life of travelers. Type of lubrication, amount used and time-periods of application, condition of rings, atmospheric conditions, yarn tension, and so on, all exert an influence on the longevity of the traveler. Two weeks at least, and with the foregoing combination of factors reasonably favorable, three weeks, can be expected of the travelers. True, if pressed, they can run longer, but it would hardly pay to jeopardize quality and production for the sake of stretching out the running time of the traveler. In connection with the running time of the traveler too much stress cannot be placed on the importance of proper lubrication applied at such periods of time which painstaking investigation will show are the best. A good quality of mutton tallow or combination of mutton and beef tallow will give good results.

Furthermore, attention to the condition of the rings is necessary if travelers are to do their best, because the most careful selection of the travelers and the most conscientious attention to the lubrication will be negatived if the rings are checkered or in a bad state of corrosion. The latter condition can be taken care of usually by burnishing; the former, however, may yield to abrasion or it may not. The only alternative then is replacement of the rings. In the latter case, it would be well to look into the advisability of purchasing rings treated so as to reduce or eliminate the corrosion element.

Again, the shedding of fibers from the moving ends going from the cheeses to the troughs will cause accumulations of these fibers on the rings and travelers which require periodical brushing to prevent loading of the traveler with lint to the point where the load causes sufficient retardation in the traveler speed to create so great a tension as to bring about a rupture of the end. When, therefore, end breakage increases beyond the normal it is well to look the travelers over for excessive accumulation of lint.

In addition to the measures already mentioned for getting best results from the traveler, there should be a periodical cleansing of the rings. This can be done either wet or dry. If the latter, a scraper must be used to clear away the hardened conglomeration of lint, grease, and what not that cakes on the upper outer flange of the rings; if cleaning is done by washing the water used should be hot and contain sal soda in sufficient quantity to remove the grease.

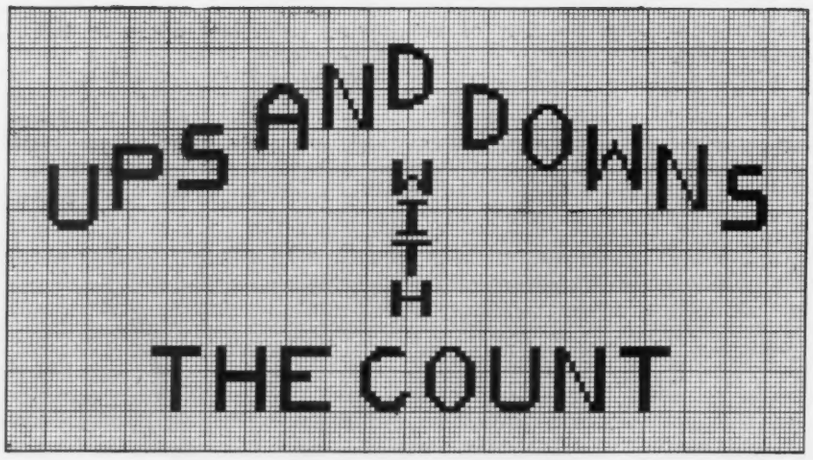
Oiling of spindles should be on a schedule which would assure a fresh supply of oil before the quantity in the spindle bases has reached the point of depletion which will cause vibration and wear of the spindles.

Like all other departments of a cotton mill, the twisting process requries cleanliness of machinery and of workers to obtain the best results. Cleanliness of machinery can be secured by having a schedule of the parts to be cleaned each day and then enforcing the ruling.

Some of the cleaning such as the creels and center boards can be done twice a week, top rolls, cap-bars, guide-wires, top of troughs, and so on, once a week, with a general all-round brushing on the last working day of the week. Naturally, if there is any part that needs cleaning more than the times specified here, the schedule should be re-arranged accordingly. Troughs should be washed out at least once a week, a certain day being appointed so that all the frames can be cleaned without fail. If doing the whole room in one day proves inconvenient, one-half can be done one day, the other half the next day. The reason for insisting on specified days for this work is because twister troughs soon get into a filthy state with an accumulation of slime and matted fibers which if allowed to remain in the trough will in time smell quite rankly due to the decomposition of the stagnating material.

A schedule such as was mentioned for the clean-

(Continued on page 749.)



Seventh of a Series of Articles on Textile Designing

IN THIS seventh installment of his series on textile designing, the author discusses the creation and making of patterns. As previously stated, clippings of preceding installments of this series will be furnished to those requesting them.—The Editor.

IN THE LIFE of the dobby designer, the consideration which governs his subsequent actions is whether he is to make an original design or whether the design has been furnished by the customer or by the mill's selling office. In the first instance, the designer will get out his old scrap-book and fumble around until he finds a sample or two which he likes. Then he takes a little from this one and a little from that, he changes the border of one and leaves out part of the center of another, he surrounds the whole thing with a series of blocks to form a diamond and submits an *original* design. He may not actually open his scrap-book with his hands (many old timers keep only mental scrap-books) but he remembers something which he has seen and alters it enough to make it suitable for the matter in hand. For just so surely as there is nothing new under the sun, just so surely is there very little original designing—the most we do is select, rearrange, and adapt.

After he has decided on the general idea of his design, his problem is very much the same as if the pattern had been submitted by someone else. The problem now is to make the figure in the cloth look as much as possible like the picture of the pattern. If the customer or the selling agent has sent in the design it is usually painted in water colors on card-board. The artist who painted the design may not have any knowledge at all of a dobby loom—his whole job is to present an attractive picture. The designer picks up the job at this point and approximates the picture in cloth as nearly as the construction of the cloth and the limits of his dobby machine (or dobby head) will permit. Just remember that a picture is a combination of lines—it may be for the ceiling of a theater, for the mosaic tile of a floor, for an iron fence, for the stenciling of curtains, or for the border of a towel. The designer must know how many ends and how many picks per inch (the construction) the cloth has, how wide the cloth is to be, the size of the pattern (length and breadth), and the number of harness the dobby has.

Very often a series of patterns is desired in the same price range. That is to say: the construction, the width, and the yarns are all the same; the only difference is to be in the pattern or design. In such a case considerable saving is effected because all the warps can be slashed together and later drawn-in for whichever design is desired. Also, a warp can be taken out of the loom and drawn for another design in the series if some of the patterns turn out to be more in demand than others. On this account the designer is often called upon to make the foot fit the shoe instead of the shoe fit the foot. It is common practice for mills to have "Quality" names or "Quality" numbers which designate fabrics of definite and fixed descriptions. Thus one mill had sixteen patterns of "Quality 300." Quality 300 had 58 ends of 25s/1 cotton, direct dyed, in the warp. It had 50 picks of "A" quality 150 denier rayon, bleached, in the filling. It was 32 inches wide including selvages. There were 56 ends in each selvage, giving a total of 1912 ends in the warp or 1800 ends for the body. Thus, when the designer was called on to make a new pattern for this quality, he knew just what he had to work with.

A Word about Selvages.

Let us digress for just a moment to say a word about selvages. It is almost universal to make a selvage in one of two ways. One way is to make it out of two-ply yarn, of which the ground warp is the single ply. In this case, the selvage contains the same number of ends per inch as the body of the cloth. The second way is to make the selvage out of the same yarn as the ground or body. In this case, there are usually twice as many ends per inch in the selvage as in the body of the cloth. This second case explains the calculation for the ends in Quality 300 described. Selvages run from ⅛ to ½ inch in width, as a rule.

Well, let's make a design for Quality 300, taking Fig. 42 as a pattern. Remember that this is a pattern and that the black portions do not necessarily represent warp effect. As a matter of fact, in this instance the pattern is made with filling effect because the rayon filling is so much more pleasing and attractive than the cotton warp.

The chief instrument which a designer needs is a rule. We would suggest a 12-inch steel rule, 1-inch wide. The popular graduations are in 28ths, 48ths,

64ths, and 100ths of an inch. We get these on the four edges of the rule. A rule of this type saves much calculation and guess work, I have found, on the part of the designer.

On to the task—Fig. 42 shows two repeats, both ways, of the pattern. If you will notice the numerals above the pattern, you will see that there are eighteen natural sections to the repeat. Our customer has submitted this pattern and says that it is to be approximately 2 inches square. We have seen that we have 58 ends per inch to work with, so we go to work with the idea of distributing the 116 ends equally amongst our eighteen sections. We find this to be something over six ends per section. We tentatively decide on this number and then look a little further. Eighteen sections at six ends per section will make our pattern repeat on 108 ends.

At this point it is well to say that the thorough designer always makes his cloth balance unless there is a specific reason for not doing so. That is to say, if the cloth is folded on the middle end so that one selvage lies upon the other, the various components of the pattern in the top layer will coincide with the same components in the bottom layer of the cloth. This is true only if the pattern itself is balanced. It is also desirable, although not always possible, to have an exact number of repeats in the warp. In this way it is possible to make the patterns "match up" when they are sewed together inside the selvages. This has two advantages: the stitching is less likely to pull out when it is next to the selvage, and the cloth can be matched up without waste.

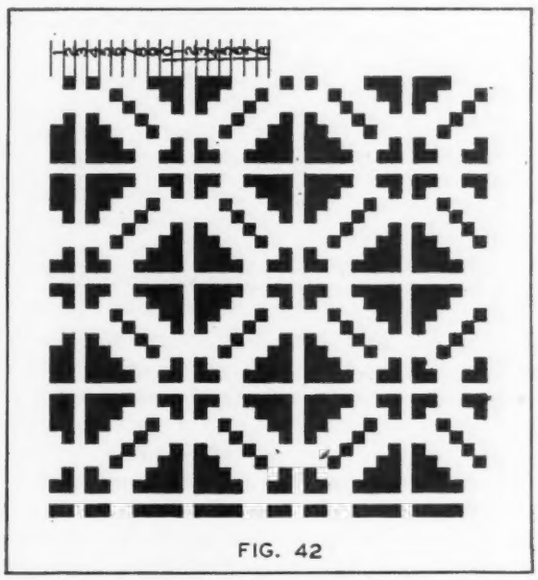


FIG. 42

Very good. With this idea in mind let's calculate a little more. We have a total of 1800 body ends. With 108 ends per repeat this gives us a little over sixteen and one-half repeats. If we work a little further we find that 112 ends per repeat would give us sixteen repeats (1792 ends) and eight ends left over. This is as close as we can get. Now comes that part of designing that comes from experience and from scratching the old noodle.

What will we do with the extra eight ends? The answer is: have sixteen repeats and then finish the design with the extra eight ends. We will show you in a little bit how well this will suit our purpose. We will make our cloth balance perfectly and also have a good, firm weave next to the selvage. The next decision rests largely with the individual opinion of the designer: how are we to distribute 112 ends per repeat amongst eighteen sections? Obviously it can't be done on an absolutely equal basis. The writer solves it as follows: he puts six ends in each of sixteen sections and eight ends in each of the remaining two sections. This leaves one more point to be decided: which sections will get the eight ends each? Inasmuch as they are naturally corresponding sections, we give eight ends each to the third and the twelfth sections.

Now let's give a thought to the filling. We want this pattern to be the same size, warp and filling ways. Since we have 58 ends per inch and 50 picks per inch, we can arrive at the number of picks per section by using the third item which we have, namely, six ends per section. We do this by direct proportion, letting "X" equal the number of picks per section, 50:58::X:6 or X = 5.2 picks per section. Of course we throw away the .2 and find that our sections will be six ends and five picks.

We have 25-harness dobby looms to weave this on. If you will look at Fig. 42 again you will see that section 12 weaves like section 3, section 11 like section 13, and so on. This means that we have nine sections weaving differently from each other. Then the greatest number of harness which we can allot to each section is two. The next thing to decide on is how we will weave the sections which make the pattern. We call the black part of Fig. 42 the "figure," and the white part the "ground."

Remember that a piece of cloth, no matter how beautiful, is valueless unless it is strong enough for the purpose for which it is made. Quality 300 is women's dress goods, and that means it must stand laundering. So we make the ground plain weave for the sake of firmness. With two harness to the section, the only way we can make the figure is by full floats. We haven't enough harness for a twill or a satin. Each one of these sections is approximately .1 of an inch square. If we floated every pick, we would have a space that size with no interlacing of warp or filling. This would make a fabric so flimsy that folks could fling a feline through it. So we float only three picks of the section. There is another reason for this—if we floated every pick we would have floats of nearly half an inch where we have four sections of figure weave together. In order to get around this difficulty (which would make awful cloth indeed) we float one section on the even picks and the next section on the odd. So that we can get three picks to float in the even sections, we steal one pick from the ground section adjoining it.

In making fabrics employing rayon and silk, it is desirable to have the weave next to the selvage as firm as possible and with very few, if any, long floats. This to prevent the tenterhooks from breaking the yarn in the floats when the cloth is being finished. For this reason we start the design with section 3, since sections 3 and 12 weave plain all the way. Now we come

back to those eight ends we had left over after our sixteen repeats. If we start the design with section 3 next to our left-hand selvage it will put section 2 next to the right-hand selvage because section 2 will finish the repeat. There are two reasons why we do not want this: first, the cloth will not be perfectly balanced, and second, we get long floats next to the selvage. To overcome this we make our sixteen repeats starting with section 3 and then end up with the extra eight ends, making another section 3 to stop on. Simple enough, isn't it?

Since an experienced designer seldom paints a design (he makes his calculations as above and then constructs his drawing-in draft and chain plan directly) we are showing only the drawing-in draft and chain plan. You will notice that the selvage is drawn on the same harness as sections 3 and 12, since they all weave plain all the time. Fig. 43 is the drawing-i ndraft just as it would be furnished by the designer. Fig. 44 is the chain plan. We would suggest that you construct the design from the drawing-in draft and chain plan for the value of practice. If you do this you will note that we do not have multiples of three floats in all of the sections. We have modified this somewhat for the sake of proportion. Remember that the drawing-in draft was constructed so as to make the woven fabric start and stop with section 3 of the warp. In constructing the chain plan, we started at the top of Fig. 42, showing the pattern, and painted one repeat. You will note that crosses are used instead of solidly filled squares in both the drawing-in draft and chain plan. This is in accord with actual mill practice. This drawing-in draft actually has a few more words of direction than would ordinarily be used when the help has become experienced. They are used here for the sake of clarity.

How about a little discussion of the reed? In this connection the first thing we want to know is the amount of shrinkage in weaving which the filling undergoes. This is expressed by percentage, based on the length of yarn in each pick and the difference between this length and the width of grey (unfinished) woven fabric. Of course we know that warp and filling yarns cannot be interlaced without losing in length. This loss is arbitrarily called contraction in the warp and shrinkage in the filling. At this point it is the filling which we are interested in. This shrinkage is influenced by many considerations, viz., the tension on the warp, the humidity, the number of threads per inch, the number of interlacings per inch, the size of the yarns, the nature of the yarns, and the position of the sand-roll (high or low) on the loom. For the general run of fabrics in a cotton mill four to eight per cent will hit it. The rule which we are about to give you is not unchallenged, but it is generally accepted by the smartest designers. Here goes: the spread in reed minus the grey width of the cloth divided by the spread in reed equals the percentage of shrinkage. In other words, the shrinkage expressed in inches divided by the reed spread expressed in inches equals the percentage of shrinkage. Many good designers divide the shrinkage by the grey width, but this is not strictly accurate.

If we have any two of these figures (1, spread; 2, shrinkage; 3, grey width) the other one may be found readily. Take the draft in Fig. 43, for example. Here we have the spread and the grey width. 34.4 inches minus 32 inches equals 2.4 inches, the shrinkage. Now if we divide 2.4 by 34.4 we find that the shrinkage is almost exactly 7 per cent. Fractions of a per cent are never used. Most usually the designer's problem is to find the reed spread when he knows the grey width and either knows or estimates the shrinkage. In this case, he subtracts the percentage of shrinkage from 100 per cent and then divides this into the grey width to get the spread. Say we know the width to be 32 inches and the shrinkage 7 per cent. 100 per cent minus 7 per cent equals 93 per cent. 32 divided by 93 per cent equals 34.4, the spread. If a pick of filling is pulled out of a small sample and smoothed out to its original length the shrinkage can be found just the same as if we had the full width of the cloth. We consider the width of the sample as the width of the cloth and consider the smoothed-out length of the pick as the spread. Assume that we have a sample 6 inches wide. The

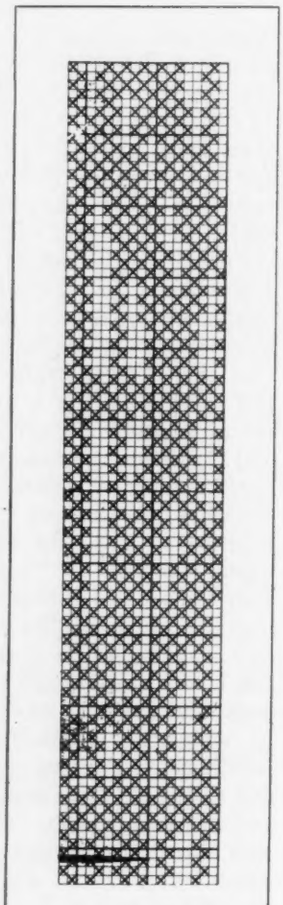


FIG. 44

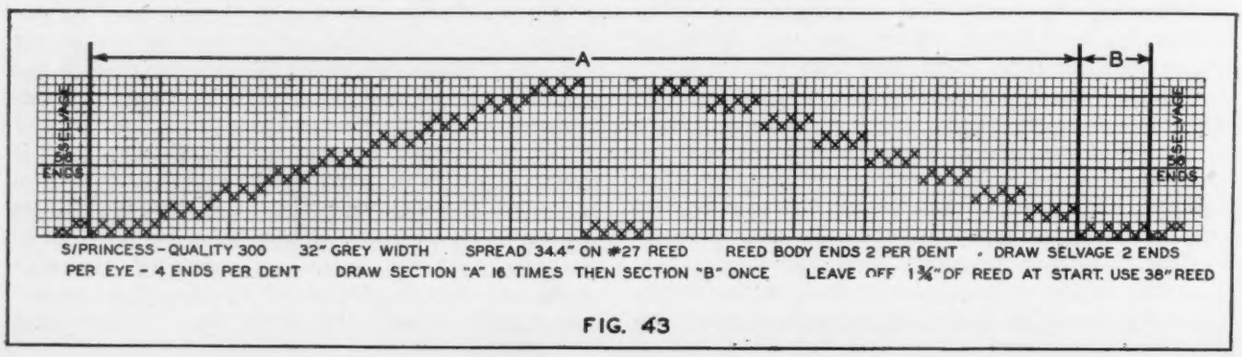

A
B
SELVAGE ENDS
SELVAGE ENDS
S/PRINCESS - QUALITY 300 32" GREY WIDTH SPREAD 34.4" ON #27 REED REED BODY ENDS 2 PER DENT . DRAW SELVAGE 2 ENDS
PER EYE - 4 ENDS PER DENT DRAW SECTION "A" 16 TIMES THEN SECTION "B" ONCE LEAVE OFF 1¾" OF REED AT START. USE 38" REED

FIG. 43

smoothed-out pick is 6.45 inches. This is a shrinkage of .45-inch and if we divide this by 6.45 inches we get our same 7 per cent.

That ought to make reed spread pretty plain. Now for reed number or dents per inch. Reeds are designated and stamped in one of two ways; either by so many dents per inch or by a total of so many dents "spread on" such and such a width of reed. We prefer the former. Let's see how many dents we will have in our reed. The designer decides to reed the body 2 ends per dent. He might decide 1, 2, 3, or 4 ends. Almost anyone would use 2 here. Then he says that he will reed his selvages 4 ends per dent to make them twice as dense as the body.

Now the body has 1,800 ends, which means 900 dents. The selvages have 112 ends which means 28 dents or a total of 928. We know that these dents will be contained in 34.4 inches, because that is what our spread must be to take care of the shrinkage. So we divide 928 dents by 34.4 inches, and get 27 dents per inch, which we call a No. 27 reed. Reed manufacturers will make reeds to any specifications, but mills usually stock them in ¼ sizes, that is, the next reed below a No. 27 would have 26.75 dents per inch and the next one above would have 27.25 dents per inch.

You will understand S/Princess—Quality 300 as meaning that this particular pattern is called Style/Princess and that it is made on a Quality 300 basis. It may be well to explain that we draw the selvage 2 ends per eye because each two ends side by side weave just alike (or "flat"), and we may just as well save harness eyes and save crowding the harness eyes on the shafts. The drawing-in hands (some of them object to being called drawers) will draw the 56 ends in the left hand selvage. Then they will start at the left hand end of the section marked "A" and draw through this section until they reach the line separating it from section "B". They then go back to the first end of section "A" again. After they have gone through section "A" 16 times, they go through section "B" once and then draw the right selvage of 56 ends. Now the warp is drawn and reeded and ready for the loom.

Perhaps we had best explain what we mean by leaving off 1¾ inches of the reed at the start. This particular loom has a reed-space of 38 inches, and we use a reed of that length. Since our reed-spread is 34.4 inches, we have about 3½ inches left over that will not be occupied by yarn. In order to get the warp in the middle of the reed we put one-half of this space on both sides of the warp.

One word more and we finish this article. Don't be alarmed if your system is not exactly like this. Possibly your mill is not so complicated as to require all of these directions. On the other hand, some mills have looms of so many different types and make such a varied class of fabrics that even additional information is necessary. The shorter you can make your story and still avoid any possible confusion, the better off you are.

Editor's Note: Readers are advised to preserve this copy of COTTON as Article VIII of "Ups and Downs" is devoted to the records required to be made for S/Princess—Quality 300.

Twisting of Fine Plied Yarns.

(Continued from page 745.)

ing should also be worked up for oiling or lubricating the various parts of the twisters, such as cylinder bearings, gearing end, lifter rods, slow-motion, and so on, the fast moving parts being done once or twice daily, the slow-moving parts weekly.

The bands or tapes that drive the spindles require special attention. If the spindles are tape driven much of the uncertainty of twist that attends band driven spindles is side-tracked; for tapes, if given correct initial adjustment will run many months without attention as they are fitted with a tension which automatically takes up any slackness occurring in the course of time. With ordinary care tapes will run 6 to 9 months without renewal.

Bands on the other hand present an entirely different problem. The type of band, twisted or braided, the composition of the band, the initial tension at which bands are put on, the kind of knot, and the method of tying the knot, all exert some effect on the life of the band. To the list of factors already mentioned should be added another very important one—atmospheric condition. Uncontrolled humidity from a heavy rainstorm can create havoc among the bands. To forestall any looseness which might cause slackness in the twisted yarn, the bands should be subjected to a semi-weekly inspection and testing, at which time all slack ones are cut off and fresh ones put on. From 4 to 8 weeks may be considered a fair life for the average band.

Although no cut and dried personnel will fit every plant which has a set-up, or expects one, similar to the foregoing one, on account of differences in the running qualities of the yarn, of the twisters, capabilities of workers, attitude of the management, and so on, yet the following complement of workers will be found a good one to start with: 1 section-hand; 12 twister tenders running 8 sides each, 1 smaller paid twister tender running 4 sides; 2 spare hands who can both doff and run twist twisters; 6 doffers; 1 band-tier (male if bands are used; female if tapes are used); 2 cleaners; 1 yarn carrier; 1 scrubber, if the plant wants to have its floors clean; 1 clerk, who may devote part of time to some other department if there is not enough work in the twisting room. This line-up pre-supposes that the oiling will be done partly by the section-hand, and partly by the scrubber.

Obviously, the best arrangement for doing the various odd duties that are inevitable in a twisting room, also settling on the exact number of workers to do the work well and yet economically, can only be brought about through careful study of the actual running conditions of the room. The section-hand may have to have a fixer to help him if the frames are old, and in some cases where there is not a General Overseer looking after several departments, it may be necessary to have a supervisor who will perform the joint duties of overseer and second-hand.

CURRENT TOPICS

Talk of the Month

WHEN FAITH in business has been broken by a collapse after an orgy of inflation, and then is aggravated by a wave of encouraging forecasts which soon prove to have been false, there is an illness with complications from which recovery is a protracted process. The first indubitable signs that inventory position and replenishment demand were beginning to right the demoralized situation came with the definite upward swing of buying in textiles and some other products the early part of this year. Unfortunately this buying was limited to spots in the business world, rather than being all-comprehensive. Textiles were in the vanguard, but the ensuing relapse in the spring has emphasized the essential one-ness of business. It cannot go along smoothly with some parts sick, and textiles suffered with everything else.

With the seasonal let-down of spring, which has been not only widespread in this country but international, the relief from a depressing condition in all raw materials was postponed and once more the stock market injected a disrupting influence upon business. As one of the broker houses stated in a bulletin on general conditions early in May, "In business there is little doubt that the average consumer has had his left eye on his own commodity but his right eye on the stock market. Whether he is willing to buy materials or not may depend upon the action of securities." Thus the bulletin goes to the conclusion that "if the stock market is able to do a little better, general business may pick up again to some extent."

Since this statement was written a month before the present article is published, the soundness of the conclusion may have been tested by now. Meantime, the consequences of weakness in general business, the spring depression in stocks, or whatever other influences were at work to disorganize cotton textiles anew brought to the fore a lamentable phase of business methods in the industry, of the same demoralizing character as the night operation of mills. Temporary expedient once more superseded permanent sound policy in pricing. This involves the same factors as obtained in night work, such as possible advantage which might obtain from special privilege (if it could be vouchsafed to one or two manufacturers) in the practice and lack of advantage to any unit as others except the challenge to ruinous competition.

Futile Price Cutting Again

EVERYTHING was favorable to a holding policy when a few houses began the new session of price cutting. And it has been stated that the blame lay with a few firms. Cotton manufacturers, as well as others, long since had laid the sound foundation which was necessary for the new building which comes after a boom. The statistical position of the mills was patently favorable to a firm attitude on prices. It was a case again of trying to force business which ultimately would have to be placed, and not of increasing the volume as a whole. That will come only with the broad improvement of general business and consequent expansion of the public consumption of finished goods.

Even the drop in cotton, which by the way seems to have been a temporary lapse from stabilization created mostly by the outside influence of renewed weakness in securities, was no justification for declines in fabrics. While the supply of raw cotton is large, it was pointed out supplies held by domestic mills at the end of March were the smallest for that date in about six years. At a time when there is every prospect of world consumption starting on an upward climb for some years to come and when foreign crops are running relatively shorter, the future situation in supply and demand should begin to take precedence over the conditions that have obtained after under-consumption for four successive years in American cotton and two years for all varieties, while the world population has increased, the raw material has become cheaper and the products made from it have been made more attractive, "it is certain that we shall start off 1931-1932 with a lot of bad news left behind," said Harriss & Vose recently.

Only by turning the spotlight relentlessly on the futility of unwarranted reduction of prices can this evil be relegated to the scrap heap with over-production. The price-cutting wave, by the way, led to new apprehension of over-production despite the curtailment of night work and worse still it had the usual effect of offending large buyers who had been led to believe that substantial orders placed in the first quarter of the year were at the bottom in price. Thus buyers as well as manufacturers have been involved in loss. What with undermining confidence of buyers, and producing no compensatory gain in the volume of sales, the price-cutting procedure obviously is futile. So far as it was based on cotton prices, the case becomes aggravated.

Things Out of Adjustment

DEPRESSIONS are doubly disturbing because they not only destroy the general business confidence but they create complications by throwing values of different things out of normal relationship. Here is one of the factors which must be obvious, but the struggle to maintain unbroken the standards in one industry or branch of economic activity against the unsettlement created by new relations with the rest of the business world has not provoked any noticeable comment. It is a very serious matter, but something which cannot be remedied except as the various economic branches restore their individual positions to normal. Time is the only remedy for this condition.

Disarrangement between one another of the various groups, however, must be considered in attacking such questions as prices and wages. Recently the Sec-

retary of Commerce, Robert P. Lamont, voiced the sentiment that high wages are the key to prosperity. In line with the comment made in this paper recently to the effect that lowering of wages would not stimulate new and profitable business, we find Chairman Weir of the National Steel Corporation saying: "Low earnings of steel companies in no way justify any reduction in wages. Reductions would probably merely be passed along in lower prices. Large buyers are entirely satisfied with prices, which means they are as low as necessary to stimulate competition."

From such a statement one may deduce that wage reductions in lines which are already deflated would tend to aggravate rather than mend the dislocation of relationships between various groups. It suggests desperate measures for relief at a time when one should be looking for betterment. The present is always difficult to visualize, but a report of J. Lewis Benton, general secretary of the National Association of Manufacturers, after a survey of factories covering 23 basic industries and employing nearly 500,000 workers, gave definite indications as of late April of "permanent and continued" gain in employment this year, with more hopeful aspects for the summer. We do not give the figures here, but the report does and it can be investigated.

Leveling Off at the Top

WHILE business is about at the bottom it may seem incongruous to discuss ways and means of leveling off at the top, but now is the time for building for more permanent prosperity and now is the time, moreover, when we can recognize the evil effects of booms. We are starting to rebuild and apparently the way to even the peaks and valleys is to avoid piling up a house of blocks until it becomes top-heavy. If one stop at the last point of balance, there will be no toppling down of the blocks. We may ultimately build "skyscrapers" of textiles and other products, secure the greatest benefits of mass production, but only by scientific figuring of the construction rather than following the specifications of consumers who plan recklessly.

On every hand we run across the discussion of regularization of production and of employment as the paramount issue of the day. Reverting to the examples of the Procter & Gamble Company and the Walworth Mfg. Co., which we have previously mentioned, we may submit that these are demonstrations of the practical rather than the theoretical application of the idea of scientific building of business. A prominent development in the discussion of the problem is the emphasis which is being placed by leaders, among them Gerard Swope, president of the General Electric Company, on the wide community of co-operative interests involved. The underlying principles he summarizes as follows: First, the point of view of the company, trade or industry; second, that of society or the community as a whole, and third, the point of view of the employee, the particular human being involved.

At the annual meeting of the Chamber of Commerce of the United States, M. B. Folsom, assistant treasurer of the Eastman Kodak Company, cited an instance of an industrial center which is co-operating on the idea of the community of interests. He said that a survey of sixty-nine industrial concerns of Rochester, N. Y., employing 41,000, revealed that production and employment had been stabilized materially by sales forecasts, production scheduling, manufacturing for stock, standardization of products, diversification of products and intensifying sales efforts.

From the Textile Viewpoint

GOING a little further on this subject, we recommend a reading of a very comprehensive address by Walker D. Hines on the promotion of stabilization through keeping production in balance with demand, before The Taylor Society, in which he speaks largely in general terms but with the cotton textile industry as his special background; also a brief talk by S. Robert Glassford, president of Bliss, Fabyan & Company and former president of the Association of Cotton Textile Merchants of New York, dealing particularly with the essentials of co-operation. Among the points made by Mr. Hines is one dealing with that apparent obstacle to co-operation, the Anti-Trust Law.

The United States Chamber of Commerce, the American Bar Association and the Congress of Industries will combine forces in the fall in an effort to make a substantial revision in the Sherman law. The President himself has given hearty endorsement to the movement of trade associations and more than once Government officials have cited the scope of such bodies as a healthy development in American industry. But the paradox exists of a movement for co-operation, which is patently the great need of the day, being hamstrung by law. Mr. Hines, however, maintains "even positive agreements . . .for balancing production with demand in an over-extended industry should be regarded as fully conforming to the Anti-Trust Act," which he finds is *not* unsound in principle though "it may well be that the machinery for administering the act can be improved."

Another important point which Mr. Hines brings out forcibly is the wholesale injury from unrestrained competition, even to customers. "In the cotton textile industry," he says, 'the attitude of customers about this matter has been strikingly illustrated. They have repeatedly and vigorously besought the industry to stop its efforts to produce and sell goods in excess of the demand. Indeed the customers themselves have been the most unsparing critics of the unsound policies of excess production which have demoralized prices and caused widespread hesitancy and fear which are the very antithesis of confident and unrestrained commercial dealing."

Advertising, Research, Etc.

CO-OPERATION of another sort is involved in advertising, research and various technical problems of the industry. Recent weeks have shown an advance in wholesale advertising of the cotton industry, that is of its products, and the development is a wholesome one. In the days of a great diversity of products to engage the attention of the consumer, the old industry cannot go along the line of catering to buyers on the theory that its output is a necessity. It must vie with the new comforts, conveniences and recreational products for the call.

National Cotton Week.

NATIONAL COTTON WEEK may be accounted a logical climax of the broad movement the past couple of years to make the world cotton-conscious. Whether through the trade association, the private manufacturer or the community — notably the widespread movement of the South of late in one section after another—the effort to increase public interest in cotton constructions is an unusual example of co-operative advertising.

June 1st to 6th was designated as National Cotton Week by Secretary Lamont of the Commerce department, and Secretary of Agriculture Hyde, following conferences with George A. Sloan, president of The Cotton-Textile Institute, and Cason J. Callaway, president of the American Cotton Manufacturers Association. The announcement came too late for use in the May issue of COTTON, and the present number was closed prior to the occurrence of the event, so that a detailed report is not practicable. At the time of going to press, extensive plans were well under way among various agencies in the industry for the conducting of style shows, parades, contests, etc., in keeping with the thought of Cotton Week.

What the Southern Mills are Doing

THE AVONDALE MILLS, Sylacauga, Ala., recently purchased an Armstrong roll covering unit to take care of cork rolls being installed in their mills.

The following mills recently placed orders for Boyce weavers' knotters: The Swift Mfg. Co., Columbus, Ga.; The Bibb Mfg. Co., Macon, Ga., for their Columbus and Porterdale (Ga.) mills; The China Grove Cotton Mills, China Grove, N. C.; The Steele's Mills, Rockingham, N. C.; The Roxboro Cotton Mills, Roxboro, N. C.; and the Wade Mfg. Co., Wadesboro, N. C.

New equipment and machinery is being installed in the Sauquoit Spinning Co., Gadsden, Ala., Which was taken over about a year ago by Standard-Coosa-Thatcher Co. of Chattanooga, Tenn., to produce all combed yarn.

The Guillet overhauling system, furnished by the Dixie Spindle & Flyer Co., of Charlotte, N. C., was recently installed in the Martha Mills, Thomaston, Ga. for lining and leveling their spinning and roving frames. This same system has been purchased by the Proximity Mfg. Co., Greensboro, N. C., and the Cannon Mills, Kannapolis, N. C.; also the Gossett Mills, Williamston, S. C.

The Pepperell Mfg. Co., Lindale, Ga., recently placed an order through the Carolina Specialty Co., Charlotte, N. C., for three Hermas shearing machines and three Hermas vertical brushing machines with the new improved V-belt drive.

Bibb Mfg. Co., Macon, Ga., recently awarded contract to American Moistening Co. for humidifying equipment for supplementing the present central station equipment in their Columbus weave shed.

The Bladenboro Cotton Mills, Bladenboro, N. C., have purchased McColl comb guides from J. Fred Welch, of Charlotte, N. C.

At a recent stockholders meeting, plans were announced for a new finishing and dyeing plant to the Burlington (N. C.) Mills. Plans for the operation of a throwing plant were also announced by J. Spencer Love, general manager.

An extension is being built to the weaving department of the Hartsell Mill Co., Concord, N. C. Houses in the mill village are being repainted and the streets are also being improved.

A new organization is now operating the plant of the Edna Cotton Mills, Reidsville, N. C. The mill has been thoroughly renovated and machinery put in shape for the operation.

Taylorsville Cotton Mill has been purchased by A. B. Carter, owner of the Carter Mills, Lincolnton, N. C., and it is probable that Mr. Carter will operate this mill in connection with his Lincolnton plant as Carter Mills No. 2. The plant has 7,000 spindles and will produce double carded yarns, 30s to 50s, including novelty yarns in colors. L. L. Hurley, of Gastonia, will be superintendent.

It was recently reported that 60 additional looms had been installed in the Caromount Mills, Rocky Mount, N. C., formerly the Rollinson Mills. The plant produces plushes and velours.

Southern Silk Mills, Inc., Kernersville, N. C., recently purchased a five cylinder Johnson rayon warp sizing machine through the Carolina Specialty Co., of Charlotte, N. C., and also four additional Sipp-Eastwood winders through the same company.

Bonnie Cotton Mills, Inc., Kings Mountain, N. C., have installed in their opener room the "Breton Minerol" process equipment for conditioning their cotton. This equipment was furnished by the Borne Scrymser Co., of New York. This same equipment has been installed in W. H. Draper and Sons Co., Rocky Mount, N. C.

The Monarch Mills, Lockhart, S. C., just recently installed three Hermas shearing machines and three Hermas improved vertical brushing machines with the new V-belt drive. This machinery was furnished by the Carolina Specialty Co., Charlotte, N. C.

The Harmony Grove Mills, Commerce, Ga., have recently purchased the Armstrong roll covering unit to take care of cork rolls being installed in their mill.

The Pilot Cotton Mills, Raleigh, N. C., recently purchased by Karl C. Hudson, W. H. Belk, and C. S. Tatum, former general manager, are in the process of reopening, with orders on hand to insure continued operation for two or three months, it was recently announced.

Orders have been placed by the Burlington Dyeing and Finishing Co., Burlington, N. C., for piece goods dyeing and finishing machinery and as soon as a suitable location is secured the machinery will be installed.

The Ranlo Mfg. Co., Gastonia, N. C., have installed a new dye plant which will be operating in connection with the Modena plant, also of Gastonia.

One of the largest single reed orders placed in recent years for equipping looms on fine broadcloth was recently placed by the Erlanger Cotton Mills, Lexington, N. C., with the Greensboro Loom Reed Co., when they entered an order for equipping 1,000 looms.

New England Mill Situation

May 18, 1931.

MUCH DISCUSSION tending toward the merging of additional textile enterprises in New England has been current under recent date. The trend toward mergers is gaining strength in the New England fine cotton goods industry, and now reports are current that efforts are being put forward to form a new aggregation of about 1,750,000 spindles. Certain groups are at work bringing different mills together. A Providence, R. I., concern is credited with having plans to merge several enterprises, one of which it is already understood to be financially interested in. Just what group is in back of the rumored larger merger has not yet been indicated, but it is understood that several Fall River mills as well as some in other centers have been approached.

The comparative success that has attended efforts to centralize control of the fine goods industry in a few hands is encouraging further efforts toward such ends. The associated Textile group, the Berkshire Fine Spinning Associates, the merger formed by United Merchants and Manufacturers all seem to point the way. Indeed the ultimate success of some of these is regarded in the industry as closely tied up with the proposition of gathering in other poorly financed or otherwise weak manufacturing units and securing for them an adequate capitalization and degree of organization that would eliminate demoralizing competition. Such instances are fewer in the New England industry today, but there are still concerns that might be more satis-

factorily operated by a larger group.

The past month has been one of declining demands for the products of the fine goods mills, and as a result additional curtailments have been urged upon producers. In contrast with producers of some other types of cloths, the fine goods mills have generally heeded the warning that the season is nearly at an end, and have been shutting down looms as contracts have expired. Prices of fine goods have sagged somewhat, although not so much as have coarse goods levels. The low levels at which additional contract business has been waiting have also proved uneconomical to the majority of mills and have caused a number to decline to take such business.

Important producers of all cotton fine goods have, however, been getting a fair business for this period of the year on such goods as lawns, super-lawns, voiles, curtain materials, and other descriptions. Declines of ¼ cent from the season's peak prices have been named on some of this business. The considerable vogue for cotton dress goods and the heavy call for organdy and other cloths has served to extend the season slightly beyond its normal run. The promotional activities of "Cotton Week" which was to be sponsored by the Cotton-Textile Institute and by producers and distributors of cotton goods throughout the country were regarded as beneficial to the New England fine goods industry, in common with other sections of the business, and were no doubt instrumental in stimulating cotton goods and producing an enduring effect.

The Eastern industry has been working of late for revisions of freight rates on sheets and pillowcases, and the last month has seen considerable activity to the end of securing what New England producers consider a more equitable rating to the west. A conference on the subject of rates is scheduled for the near future in Cincinnati, Ohio, when representatives of northern and southern railroads, the shippers, and the receivers will be heard. Charges of sheet and pillowcase shipments from New England mills to Chicago are stated to be $1.42 per 100 pounds to Chicago, against $1.02 from Lyman, S. C., and $.96 from Danville, Va., to Chicago. The southern rates are stated to be in the commodity rate class while those from New England are in the first class rate group. Further on December 1 increased class rates have been ordered by the Interstate Commerce Commission which will further increase the toll from New England to the West.

Developments among individual mills in New England have been few under recent date, and the period has been generally uneventful. The matter of mill taxation was evidently being pressed to lesser extent, most of the mill communities in New England having undergone a change of attitude to this problem. City Treasurer John Morris of New Bedford, for instance, has announced that that city plans no further mill tax suits. Actions had been taken against the Bristol mill because of transferral of its real estate and against the Whitman mill because it was in arrears on 1929 taxes, but the Holmes mill is the only concern whose taxes are allegedly unpaid, and this it states to be in arrears for 1930 only. No action is planned against this concern, at least not before September. Jerome Newman recently sold the Bristol mill to the Bristol Real Estate Corporation, which is owned entirely by the Bristol Manufacturing Company. The sale is believed to have been made in order to obtain a minimum valuation on property and machinery. Many employees of the mill have been laid off recently, giving rise again to the oft-denied report that Mr. Newman planned to shut down the mill.

In the Fall River mill district conditions continue unchanged except that a lighter business has been forthcoming recently. All cotton manufacturing units of the American Printing Company continue in operation. The printing plant and also the plant of the Algonquin Printing Company have been well engaged. The printers have recently lowered percale prices and are understood to be getting a larger business than recently.

The Davol Mills voted at their regular annual meeting held recently to change the capital stock of the concern from $100 par value to an equal number of shares of no par value. At the meeting 7,572 shares were represented. The vote was unanimous. Simeon B. Chase, president, declared it absurd to carry so high a par value on the stock in view of its very low price, and felt that the change to no par value would aid the mill in the matter of taxes. For the year ended April 4 the mill reported a surplus of $39,000 against $109,000 a year ago. M. Richard Brown was re-elected treasurer, and other officers were re-elected. Mr. Brown, who also has been treasurer of the Stevens Manufacturing Company, bedspread manufacturers of Fall River, has resigned this latter position and will be succeeded by F. Gilbert Hindsdale of New York City, who is connected with Clarence Whitman and Sons, the New York selling agents for the mill. Removal of the treasurer's office to New York influenced Mr. Brown's resignation. No change in policy is contemplated by the company.

Out-of-town interests represented by a firm of attorneys in Boston are negotiating for purchase of the Conanicut Mills in Fall River, which have been in receivership for some time. Action on the plan is due shortly, calling for payment of $13,000 plus taxes due the city to the amount of about $75,000. The mill will be reopened if the plan is accepted. It was last operated as a yarn plant by the Massachusetts Thread Company. The No. 2 plant of the Shove mills in Tiverton, outside Fall River, were damaged by a fire recently and were shut down for a short time due to machinery damage. They have since reopened. Workers at the Kluger Silk mill in Fall River are on strike and the plant is idle. Weavers declined a wage cut of 15 per cent. The Weetamoes Mills, in process of liquidation, filed a financial statement showing total assets of $1,681,670 and total liabilities of $1,681,269.

The silk manufacturing plant of the General fabrics Corporation in Central Falls, R. I., has been shut down due to imminence of labor disturbance. Between 700 and 800 have been employed and the mill has been run on three shifts, night and day, for some time. The Lorraine Manufacturing Company has reopened its Westerly, R. I., plant, reemploying 50.

Receivers of the Boston Manufacturing Company, 1901, of Waltham have filed another report showing cash on hand of $195,413, and petitioning the courts for authority to pay a second dividend to creditors and to reimburse themselves to the extent of $10,000 for their services. They already have been paid $15,000 for services as receivers. Amory, Browne & Co. is the largest creditor with a claim of $1,175,704.

The Pequot Mills in Salem, Mass., have reduced operations from five and a half days a week to five days a week and have eliminated some unimportant night operations. The total reduction is from 48 hours weekly to 43¼ hours. The cut in operations is due to a lull in demand and to decision of the company to avoid accumulating stocks.

The Lowell, Mass., Silk Mills will remove about June 1 to its new mill in the Shaw hosiery mill group which they recently acquired. Some 40 new industries have been brought to Lowell since 1927, affording employment for 6,000, according to a Chamber of Commerce report.

The Chautauqua Towel Mills, Inc., in Jamestown, N. Y., one of the largest textile concerns in that area, has filed notice of dissolution with the secretary of state. The plant has been in continuous operation for nearly 25 years, and was recently acquired by Donald R. Livengood and associates. Finished stocks have been sold, and some raw material and the plant remains to be disposed of.

New England mill cities have been much disturbed recently by what they consider to be misstatements with regard to their condition made by a writer in a national monthly periodical. The article described as "dying towns of New England" such cities as Lowell, Lawrence, Haverhill, Fall River, New Bedford, Maynard, in Massachusetts, and some Rhode Island towns. Textile and shoe manufacturers as well as the chambers of commerce of the several cities have been quick to come to their defense and to point out damaging errors that they declare the writer made.

Comment on the Cotton Market

New Orleans, May 15th, 1931.

EXCEPT for temporary bulges, the trend of the cotton market remained downward during the past month, due mainly to the weakness in the New York Stock Market and unfavorable domestic and European trade advices. Contributing to the decline there was the influence of May tenders, and while spot sales at reporting southern markets were larger than for the corresponding period last year, they were not of sufficient volume, considering the large available supply of American, to affect the market unfavorably. The weakness in the stock market was attributed to poor earning returns by the major industries and railroads for the first quarter of 1931, and because of the continuance of the depression in general business. There were some faporable developments during the month, but they had little or no effect on the market. Today cotton contract values, except May, made new low price levels for thus far this season and for many years past.

In late April the New York Cotton Exchange Service estimated the world's consumption of American lint cotton during March at 977,000 bales versus 904,000 for February this year and 1,062,000 for March last year; for eight months ending March 31st, 7,358,000 against 9,167,000 for corresponding period of last season.

ASSOCIATION OF COTTON TEXTILE MERCHANTS OF NEW YORK APRIL STATISTICS

Yards—	April 1931 4 weeks	March 1931 5 weeks	April 1930 4 weeks
Production	225,955,000	271,638,000	257,243,000
Sales	187,749,000	295,334,000	223,225,000
Shipments	217,582,000	317,185,000	253,360,000
Stocks	282,154,000	273,781,000	444,736,000
Unfilled Orders	294,118,000	373,951,000	357,328,000

April sales of domestic cotton goods were 61 per cent of production against 108.7 per cent in March this year and 86.8 in April last year. Shipments were 96.3 per cent of production against 116.8 in March this year and 98.5 in April last year. Stocks at the end of April increased 3.1 per cent against a decrease in March this year of 14.3 and an increase in April last year of 0.9. Unfilled orders at end of April decreased 21.3 per cent against a decrease in March this year of 5.5 and a decrease in April last year of 7.8.

BRITISH BOARD OF TRADE REPORT FOR APRIL

Year—	1931	1930	1929
Exports of yarns, lbs.	11,000,000	11,000,000	13,000,000
Exports of cloth, yards	135,000,000	217,000,000	349,000,000

CENSUS REPORT

United States Bales—	This season	Last season
Consumption, lint, April	508,744	531,911
Consumption, linters, April	66,807	67,454
Consumption, including linters, April	575,551	599,365
Consumption, lint, 9 months	3,899,272	4,848,298
Consumption, linters, 9 months	516,761	619,471
Consumption, including linters, 9 months	4,416,033	5,467,769
Mill stocks April 30th.	1,370,044	1,662,215
Stocks in public storage and warehouses April 30th.	6,034,295	3,637,046
Stocks in mills, public storage and warehouses, April 30th.	7,404,339	5,299,261
Active spindles during April	26,645,404	28,851,122
Active spindles during March	26,489,832	28,862,400

MOVEMENT TO MARKET AND EXPORTS FROM UNITED STATES

Hesters figures— Bales—	This season	Last season
Week's in sight (marketed)	94,704	99,283
In sight from August 1st to May 15th	13,607,603	14,563,637
Week's exports, including Canada	62,715	89,172
From August 1st. to May 15th.	6,197,992	6,403,913

SPINNERS TAKING OF AMERICAN COTTON, BALES
August 1st. to May 15th.

Hester's figures	This season	Last season
Southern mills	3,672,000	4,588,000
North and Canada	1,371,000	1,783,000
Foreign	5,223,000	5,919,000
World	10,266,000	12,290,000

WORLD'S VISIBLE SUPPLY OF COTTON, MAY 15TH

Hester's figures— Bales—	This year	Last year
American	6,424,116	4,067,264
Other kinds	2,542,000	2,672,000
All kinds	8,966,116	6,739,264

Recently the Federal Reserve Bank, New York, reduced its rediscount rate to 1½ per cent from 2 per cent, which is the lowest in the history of the Reserve System, and of late the Bank-of-England reduced its discount rate to 2½ per cent from 3 per cent. This makes for a combination of factors—cheap money and cheap raw material, that generally make for larger consumption. Increasing consumption and a smaller American crop for next season would undoubtedly help materially in bringing about what is generally desired, especially by the farmer and the spinner, namely—a more active demand and higher prices.

A recent Moscow press report stated in part: "Cotton sewing, which should be finished by May 15, has advanced only 16.4 per cent of the plan. The "late spring" is blamed for this situation, which may have dire results next winter."

Spot sales at Liverpool during the past week were larger than for corresponding week last year, of all growths 38,000 bales against 15,000, of which 12,000 were American versus 7,000. Russian cotton figured largely in the sales in the English market the past week, which may reflect uneasiness as regards the present outlook for the Russian crop this year.

One of the principal bearish factors in the situation this season is the outlook for small consumption, which promises to be much smaller than the 13,108,000 bales of lint consumed last season and 15,256,000 season before last. Of late spinners takings of American have been running larger than for the past couple of weeks last year. It is probable that takings during the remainder of the season will compare favorably with takings after this time last season.

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

Year—	1931	1930	1929	Normal
April	2.36	1.95	2.42	3.16
November to April inclusive	15.34	11.81	13.75	13.85

Apparently the important state of Texas has a good season in the ground so far this season.

According to the National Fertilizer Association sales of fertilizer tags in 13 Southern States for April were 17.2 per cent less than for April last year, but for 5 months ending with April sales were 28.6 per cent less than for the corresponding time last season.

As to this year acreage to be devoted to cotton in the United States, private estimates issued so far range from about 8½ to 15 per cent less than last year.

Regarding the progress of the new crop, Washington's weekly weather and crop report, released on the 13th stated in part: "Cool, cloudy weather was generally unfavorable for cotton, although conditions were somewhat more favorable in the eastern cotton belt, especially in the Carolinas and Virginia. In most cotton sections temperatures were 4 to 10 degrees under normal and the cool conditions were accompanied by cloudy or showery weather in most sections."

Meanwhile the weather inland has been more favorable generally, less rainfall and higher temperatures, but a stretch of dry, warmer weather is evidently generally desired to permit favorable progress of planting, germination of seed and for growth of young cotton where up. Much replanting in certain districts was necessary, according to reports, as result of the recent wet weather and low temperatures.

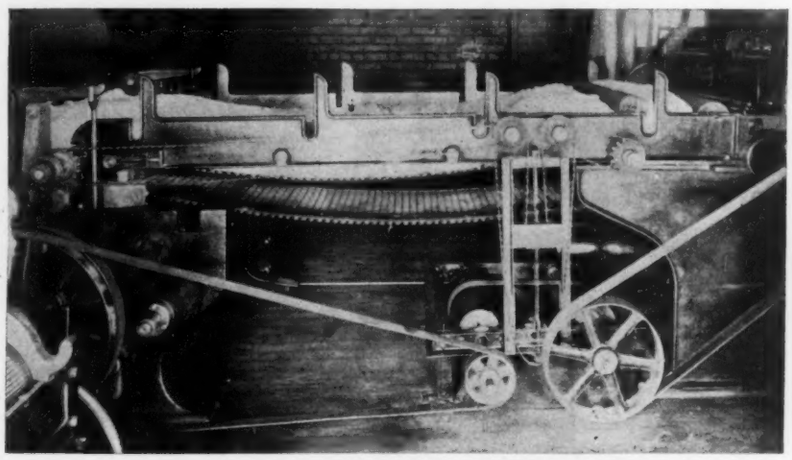
Present conditions in the cotton market appear to be such as to make possible recovery in values with any encouragement of consequence from Wall Street. Crop accounts are not any too good, and prices are comparatively very low, middling in New Orleans today 9.20 versus 15.63 this day last year, and the lowest in about 15 years Domestic consumption of lint for April was 508,744 bales versus 490,586 for March of this year and 531,911 for April of last year. Commencing with May last year, domestic consumption of lint ran light for the remainder of the season, dropping to about 474,000 bales for May, to about 405,000 for June and to only about 379,000 for July.

Concerning the situation in the stock market, a prominent New York Economic Service organization has become bullish of late on business for the first time since July, 1929, which is rather significant, indicating a change in sentiment, at least in some quarters.

New Textile Equipment and Publications

A New Method of Converting Pickers to Single Process

There has been a great deal of interest shown in possible methods of turning ordinary pickers into single process machines at small cost. Several such methods have been devised, and a simple and effective one being marketed by Aldrich Machine Works, Greenwood, S. C., is shown in the accompanying illustration. The most difficult problem in connecting several pickers into a single unit is to insure all parts of the machine running in perfect synchronism, as the evener on the finisher section is constantly changing speed, it is pointed out, and if every part of the machine is not changing speed at exactly the same rate at all times, the picker cannot make an even lap.



Method of Converting Pickers to Single-Process.

To synchronize the feeds on the single process machine, they may be all driven from the evener on the finisher section, or they may be driven by an independent synchronizing mechanism. To drive all feeds from the finisher evener imposes a very heavy load on it; a much heavier load than it was designed to carry. This difficulty may be very largely overcome by the liberal use of ball bearings throughout the picker on all parts driven by the evener; another solution, however, is to provide a separate synchronizer which is actuated by the finisher evener, but is not operated by it. This adds no load to the evener, and does not impair its sensitiveness, it is explained, so that positive synchronization of all parts of the machine can be obtained with a minimum of error due to evener belt slip.

As shown in the illustration, the finisher is backed up to the breaker, and the calendar rolls are removed from the latter machine; only the gear reduction train to the screens and delivery rolls being retained.

Referring to the illustration, it is seen that the feed pulley on the breaker is driven from the beater on the finisher through the variable speed transmission. The control of the speed is effected in a novel, but very simple manner. The front end of the conveyor apron is driven by the evener roll on the finisher, while the back end of this apron is driven by the breaker delivery rolls. Both ends of the apron are connected through the endless chain arrangement shown in the illustration, and in the loop of this chain hangs a slide that is connected to the belt shipper that controls the variable speed cones. It is apparent that as long as both ends of the conveyor apron are running at the same speed there will be no change in the amount of slack in the endless chain, and the belt shipper will remain stationary. The slightest change of speed by the finisher evener will, however, cause the amount of slack in this chain to change, which in turn will move the slide and the belt shipper until the speed of the back machine has changed to conform to that of the finisher.

A slight amount of slack is put in the apron, so that during the brief interval between the change of speed by the finisher, and the response by the synchronizer, the apron may rise or fall slightly to prevent any stretching or puckering of the lap. It is seen that this arrangement adds no load to the evener; but rather reduces it, as the weight of lap on the apron is far less than when four laps are to be kept in motion. The two sections of the machine cannot stay out of step, as the mere fact that they are out instantly operates to restore the proper speed, it is pointed out.

Any number of pickers may be connected in this manner; a synchronizer being placed between each two sections. All feeds are started and stopped in unison from the knock-off mechanism of the finisher.

Aside from the installation of the synchronizer, the only necessary changes in the machines are the altering of the draft gears to take care of the different weight of lap run with single process picking in the breaker section in order to deliver the same weight on the finisher.

The converted machine makes good laps that vary little in yard-by-yard comparisons, or in total weight, according to tests reported.

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Electro-Chemical Feed

The Permutit Company, 440 Fourth Ave., New York, N. Y., recently announced a new electro chemical feed device for controlling the flow of water into a water softener. Some of the advantages listed are:

(1) There is a meter which controls the feed and is accurate at wide range of flow. It merely measures the flow of water and makes the electrical contacts which furnish the impulses to start the motor, thus no extra load is placed upon the meter causing it to slip and interfere with its primary function of measuring the flow of water accurately at low rates as well as high rates of flow.

(2) The chemical feed control unit is driven by a fractional horsepower motor, which assures simple and positive operation.

(3) The swing drawoff pipe and its inlet are so large that no restriction is offered to the flow of chemicals. The drawoff pipe merely drains away the surface layers of chemical solution as the pipe is lowered by a motor driven drum. There are no small orifices or small passages to become clogged.

(4) Signal lamps indicate at all times how the chemical feed is operating.

(5) Specially designed snap switches are used so as to prevent arcing.

(6) Adjustments can easily and

quickly be made during a chemical charge so as to change the chemical dosage, to conform to changing water conditions.

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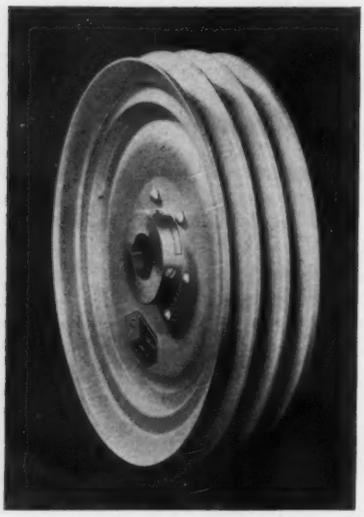
New Light Weight Texsteel Sheaves

A new type of pressed steel Texrope sheave to meet the demand for a light weight, low-priced drive, has been developed by Allis-Chalmers Manufacturing Company, Milwaukee, Wis., and, complete Texsteel Texrope Drives are



Steel Texrope Sheave.

available from stock for immediate delivery.

Texsteel sheaves are die-pressed from extremely tough steel and then each section is welded both at the web and at the rim to eliminate vibration and noise and to give an accurate balance for true running. They are manufactured in a large range of diameters, permitting ratios as high as 6:1. They are painted with aluminum paint as protection and to give them a pleasing appearance.

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Miller Duo-Purpose Lighting Fixtures

The Ivanhoe Division of The Miller Company, Meriden, Conn., recently placed on the market Duo-purpose lighting fixtures, which the company states are so designed as to perform a dual function. The company states that in the design of these new lamps they have embodied the ordinary Mazda lamps to furnish illumination for general lighting purposes and in another circuit of these fixtures they are using the new General Electric S-1 Mazda Sun Lamp for ultra-violet radiation. It is pointed out that this new fixture affords the public a lamp that will not only give adequate illumination for vision, but also ultra-violet lighting with its resulting beneficial health building properties.

Rodney Hunt Announces Counter Flow Washers

Rodney Hunt Machine Co., Orange, Mass., have developed and are marketing counter flow washers of both the slack loop and tight strand types; with which unusual water savings of 50 to 75 per cent have been reported, the company states. The accompanying illustrations show the counter current flow slack loop bleach house washer, and the counter current Type TS tight strand washers, the latter installed in a print and dye works.

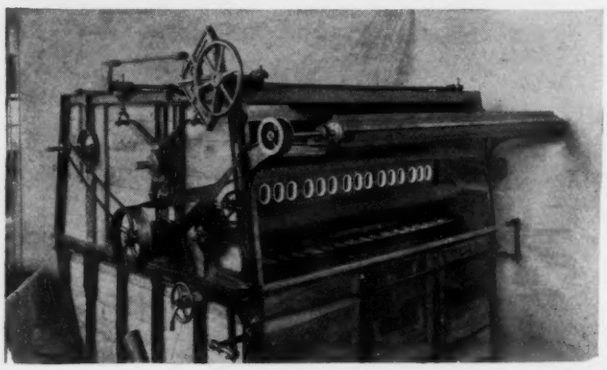
The counter current slack loop bleach house washer, the company states, incorporates the cleansing, handling and finish properties of the regular machine, and makes more pronounced the economy of water; operating, it is stated, on less than half the water required by the regular slack loop machine. By arranging several compartments in the machine, the company states, and by introducing the water at the opposite end to the goods, it is possible to cut down the amount of water required for a thorough cleansing, almost to a trickle. The machine is designed to run at speeds of from 60 to 200 yards per minute, depending upon the goods; for instance, on four-yard goods and heavier, speeds of 200 yards per minute are obtainable, it is stated, while on some of the lighter fabrics speeds of approximately 100 yards per minute are usual.

The counter current flow Type TS, washers as shown herewith, are, it is pointed out, of the standard bleach house type of log roll washer except that the tub is made with multiple compartments and multiple pit rolls. Savings in water used of from 50 to 75 per cent are reported with the counter current flow principle applied. An interesting experience of one mill is related. During necessary repairs to the water system, a tight strand bleach house washer with counter current flow tub was run for nearly two days on the amount of water coming through a ¾-inch rubber hose, operating under eight pounds of pressure, with satisfactory results; showing what is possible, under emergency conditions, although of course under ordinary conditions the use of more water is recommended.

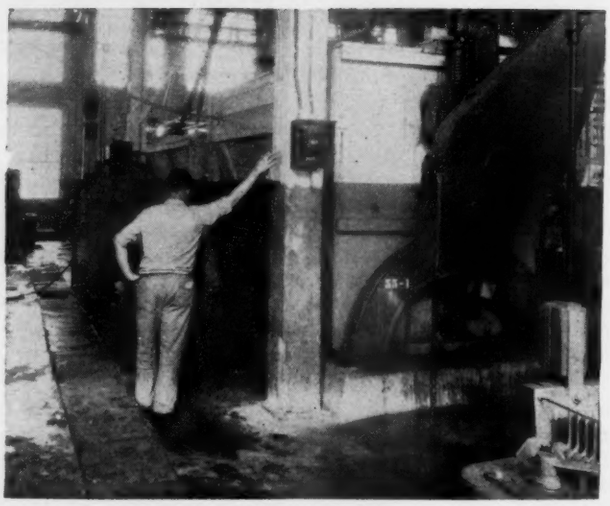
:: :: ::

Three New Dyestuffs

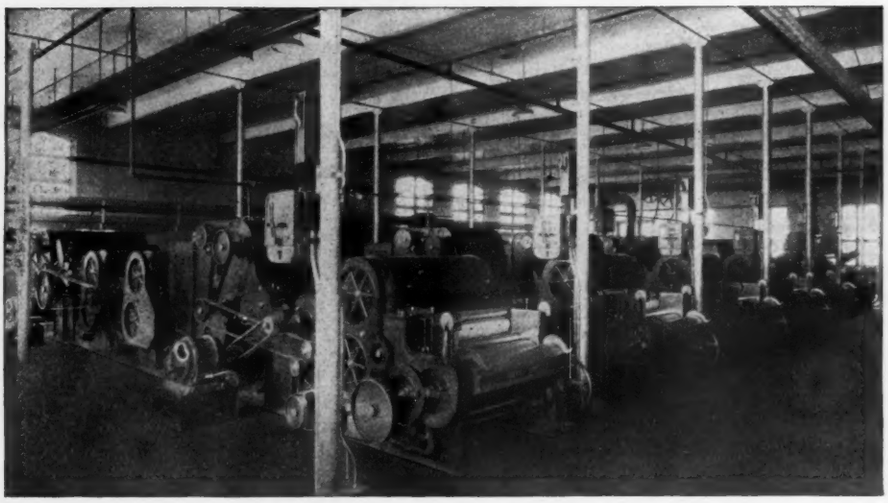
Bulletins T.B. 215, T.B. 216 and T.B. 219 describe and give the fastness properties of Anthrene Brilliant Violet R. Paste Fine, Newport Silk Fast Blue 3 G, and Celanthrene Brilliant Blue Double Powder, respectively. The Newport Chemical Works, Inc., Passaic, N. J., state that they will be glad to send these bulletins to interested parties.



Left, counter current flow slack loop bleach house washer . .



Right, counter current flow type TS washer, installed in print and dye works . .



The SAVINGS made by these six ONE-PROCESS PICKERS will pay for them in 23 months

FIG. 1

The area of the circle, Fig. 1, represents the combined power and labor charge in this picker room operating the old equipment.

The area of the circle, Fig. 2, is the same as the area in Fig. 1, but the shaded portions show the savings made with the new machinery.

FIG. 2

Note these facts:—

1. The Cost of making Laps has been substantially reduced.
2. The work is cleaner, smoother, more even.
3. Two operators are doing the work which formerly took twelve.
4. The investment required to finance this improvement was moderate.
5. The actual monetary savings in operation amount to 50.5%, and the annual return on the investment is 29.5%.

Since the ability to make these and similar savings has been demonstrated in many installations, it is our sincere belief that no mill can afford to continue the operation of obsolete machinery without incurring continual losses, which will gradually impair their quick assets and injure their competitive market position. Our Engineers are available to mills interested in these or other improvements.

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 MILK STREET, BOSTON, MASS.

CHARLOTTE, N. C. SPARTANBURG, S. C. ATLANTA, GA.

A Machine for Truing Shuttles

The problem of rough and unbalanced shuttles in weaving, and the importance of having properly balanced and smooth shuttles is covered in a recent description of the Universal shuttle truing machine by Henry Tschudy, New Bedford, Mass., representative in this country for this machine, which is manufactured in Switzerland.

While all shuttle manufacturers prepare their shuttles with as great care as possible from a commercial standpoint, it is pointed out, frequently changes in weather conditions either in transit or storage warp shuttles so that they may be out of alignment or unbalanced when put into use. The disadvantages of unbalanced or unmatched shuttles, in a four-box fancy weave, for example, and the difficulties of securing a precise match on all of the eight shuttles to be used, without the use of some precision device for this purpose, is apparent to the mill man. Furthermore, on all classes of work, it is endeavored to control or regulate as closely as possible the binder pressure, on any given fabric, since irregular pressure very often results in a difference in the cover or face of the fabric.

In weaving, with proper adjustment of loom parts, there is a natural wear on the surface of the shuttle; and with even slightly improper shuttle box setting, or power, or with race plate out of level, or because of loose or unevenly spaced reeds, the wear on the bottom and sides of the shuttle is accentuated. It is quite frequently the case, in striving for quality production, that such worn shuttles may be prematurely discarded for lack of a proper means of reclaiming them; or, if continued in operation, the difficulties mentioned would be encountered.

An illustration of a common condition of wrong alignment is shown in Fig. 1. It is pointed out that such a condition might not be discovered without a precision gauge. Fig. 2 shows the relation of a high and low center line as between the tips of a shuttle. It is pointed out that the same picker could not operate satisfactorily with two shuttles out of line in this manner, as the shuttle points would strike the picker at entirely different points, causing it to wear over size.

A precision gauge for determining the alignment of shuttles is provided, and is shown in Fig. 3. The gauge has a block with a shuttle tip which can be raised or lowered by turning a spindle screw. The adjustable shuttle tip is set at the exact center line on one end of a shuttle, and the ends of the shuttle are reversed and the other end gauged. The illustration shows the gauge being used to indicate the disalignment between the tips of a worn shuttle.

The Universal shuttle truing machine, for properly preparing new shuttles and for reclaiming worn shuttles by accurate alignment, is shown in Fig. 4. This machine planes or shaves, removing a minimum amount of material parallel to the center line of the shuttle, and any desired number of shuttles may be prepared to match any given shuttle, it is pointed out. The machine is equipped with cutters for side and bottom screws and has a grinding attachment for truing and polishing the tips.

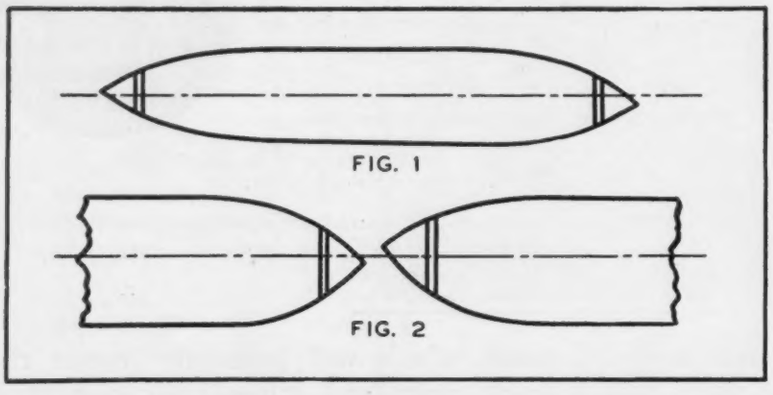


FIG. 1

FIG. 2

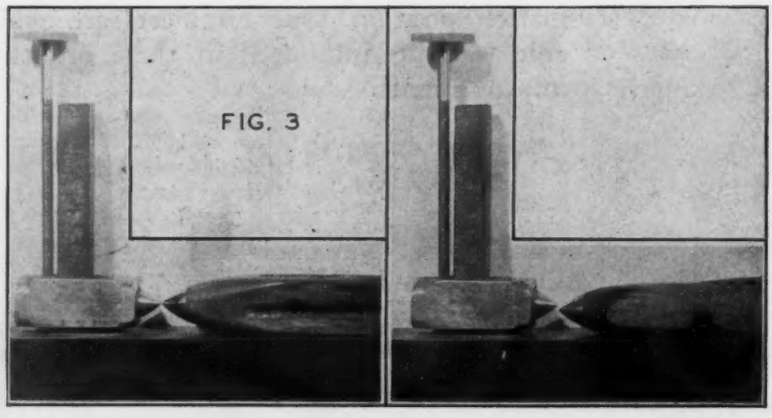


FIG. 3

FIG. 4

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A New High Speed Warper and Over-End Cone Creel

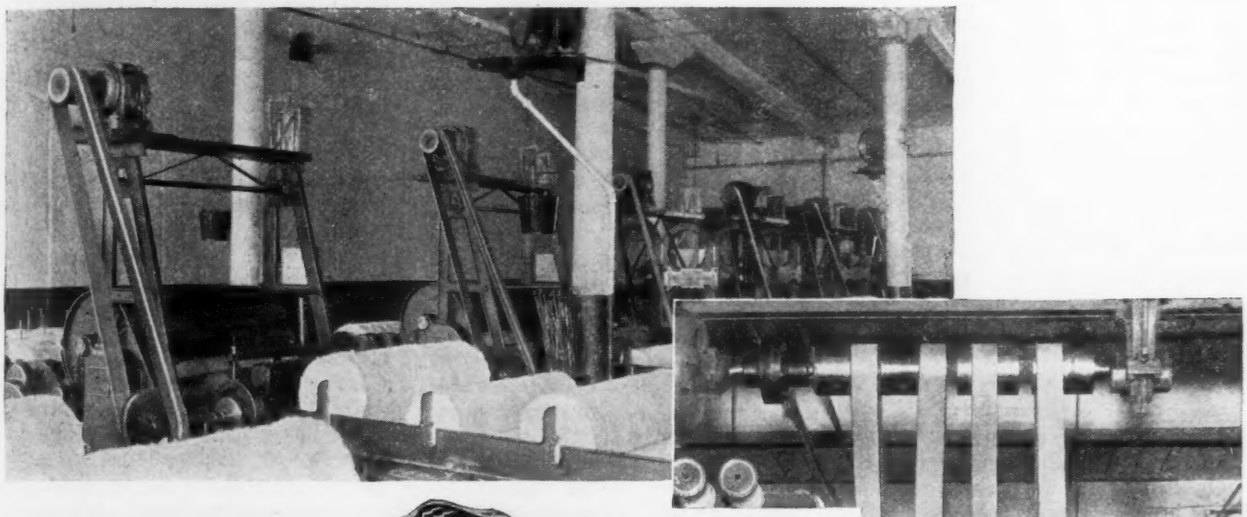
The Sipp-Eastwood Corporation, Keen & Summer Sts., Paterson, N. J., announces a new high speed warper particularly designed for rayon and a new over-end cone creel, which may be used for both rayon and fine cotton yarns.

The high speed warper is notable for the fact that it can be run from very low speed to 300 or more yards per minute and also for the fact that it is unusually rigid and free from vibration, the company states. It is pointed out that this rigidity is made possible through the employment of cast iron for the frame. Another feature pointed out is a single bar carriage which makes it easier for the operator to roll the carriage back and forth, it working so lightly that the carriage can be moved with one finger. A specially designed warp tension permits quick and easy stopping when the warp is running at high speeds.

Other features which it is stated make for higher production, better quality fabrics and less supervision include the following:

Warping carriage is of the single bar type, being braced to a 4-inch tube, which eliminates vibration of the car-

BUILT FOR YOUR WORK
BETTER FOR YOUR JOB



GOODYEAR

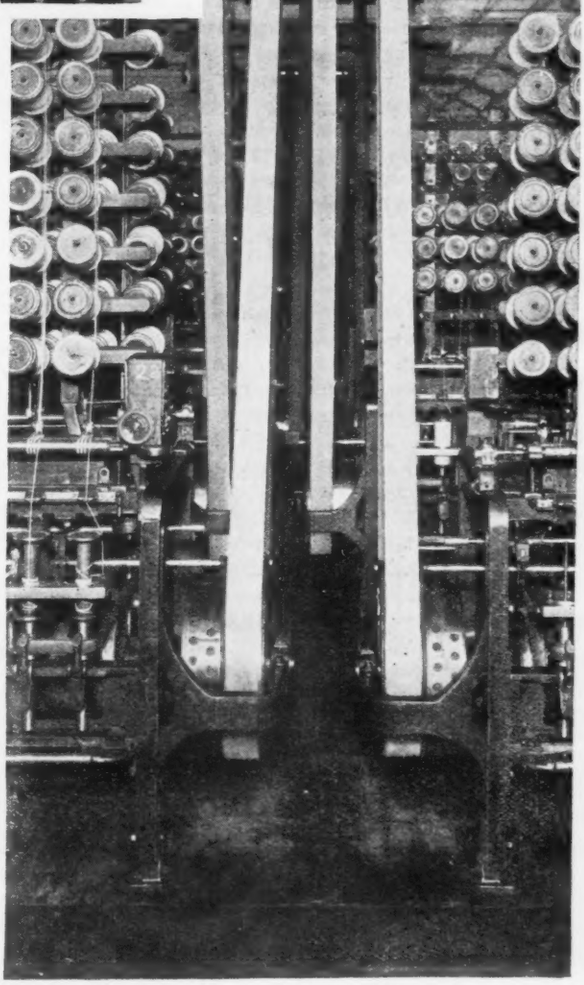
Textile Belting

Seven great fabric mills will teach a manufacturer a world about textile belting. Goodyear operates seven such mills. Goodyear knows textile belting because Goodyear has had to save belting costs on machines just like yours.

For individual motor drives on Vertical Openers, Pickers, Lappers, and Twisters the Goodyear COMPASS (Cord) Endless Belt has shown itself to be unexcelled. It is made of stout cord enclosed in a heavy covering envelope. The envelope takes the surface wear from the pulleys. The cords carry the tensions of the drive—this is the most nearly stretchless belt made!

For Cards, Frames, Slubbers, Spoolers, Looms, Slashers, and Breakers, the Goodyear THOR Belt, seamless, is the ideal belt. There is no center seam in this belt and the edges are protected by a fabric cover—all the advantages of raw-edge belting plus high durability in a protected edge! It is very strong at the fasteners—a standard belting for textile mills.

Goodyear saves its own belting costs with these two belts. They are ready in the exact sizes for your machines. Let the G.T.M.—Goodyear Technical Man—tell you about the savings they bring. He knows the specifications for each of your drives. Just write to Goodyear, Akron, Ohio, or Los Angeles, California, and ask the G.T.M. to call.



BELTS • MOLDED GOODS • HOSE • PACKING

riage and makes it easy to roll the carriage to the right or left; weightless beaming tension is very sensitive on account of being constructed with roller bearings rather than plain bearings, and is so made that it gives a uniform tension on both friction bands because the tension is self-adjusting; outside sprocket chains running from the main shaft to both warping and beaming ends are eliminated through the use of bevel gears and shafts; when traverse is changed it is only necessary to replace one sprocket, using idler on the chain to take up the difference of the diameter of the sprockets; Alemite system is used throughout; the beam may be centralized through the use of large and convenient hand wheel mounted on the end of beaming screw; beaming end is arranged to take beams 26 inches and less in diameter.

One factor contributing to the extreme rigidity of this beamer is the making of the bars of the beaming end 10½ inches from center to center. This increased center distance, together with brace to 4-inch steel tubing, are very important in making for rigidity. The beaming heads may be quickly shifted to the right or left by means of a hand wheel on a long beaming carriage. The regular large beaming gears and pawls are eliminated through the use of a specially constructed turret type spiral head motion. The beaming head is so arranged that the warp may be let back when necessary. The tight and loose pulley and shifting of the belt is done away with by means of a multiple disc clutch drive with which the beamer is equipped.

Other features stressed in connection with the new warper are:

All belting has been entirely eliminated; a variable speed permits the machine to be operated from low speed to 296 yards per minute on an 8 yard reel; the beamer speed has a range of 4 to 1, standard sprockets permitting a speed as low as 40 r.p.m., and the change in speeds being made possible without stopping the machine; both the warping and beaming speeds can be changed independently by changing one sprocket; adjustments can be made in drive chains to take up slack chain; all chains are carefully guarded; screw adjustment on warping carriage can be made to take up side play of the two delivery rollers; a 2,000-yard automatic clock may be set to stop at any predetermined yardage; the warping treadle may be operated from any position; the beaming end is equipped with a treadle lock so it is not necessary for the operator to keep his foot on the treadle; both friction bands stand up free from friction wheels because the beaming friction bands are equipped with quick release; warper is so constructed that a warp with only one inch from either side of the wood face rail can be successfully beamed; the warper may be equipped with electrical control to stop and start the motor or with electric stop motion.

The new over-end cone creel of the Sipp-Eastwood Corp. accommodates five or six-inch jumbo cones of rayon, and, it is stated, may also be used for fine cotton yarns. It takes 600 to 1,000 cones arranged for magazine delivery or single cone delivery, and is equipped with an improved patented tension device which gives equal tension on all threads and permits delivery of the yarn over the end of the cone horizontally at any speed yarn will stand, according to the company.

It is also stated that this cone creel is used with an improved condenser on warper which gathers or condenses the ends of warp before delivering them to metal reeds, and that the creel is so built that it can be arranged for inside sheet or outside sheet delivery.

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Thermal Unit Coolers

Thermal Units Manufacturing Co., 228 North La Salle Street, Chicago, recently issued descriptive material on Thermal Unit Coolers which gave very complete information concerning the design, construction and operation of their cooling system. They pointed out that Thermal unit coolers are especially adapted to automatic control, and that in cases where a low relative humidity is to be maintained, or where temperature condition of the refrigerant and room are such that the element will not frost, temperature control may be secured by the use of a thermostat in the fan motor circuit.

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Shaft Flexibility

Shaft flexibility in power transmission is fast becoming a major factor for consideration in small horsepower installations. The high cost of worn bearings due to misalignment, and general machinery depreciation due to vibration, as well as costly breakdowns and delays due to these inefficiencies, is comparatively just as important on the small installations as on the 5000 H. P. jobs, it has been pointed out.

According to the Morse Chain Co., Ithaca, N. Y., the big problem among flexible coupling manufacturers has been to design a practical coupling that can be supplied at low cost. They state, however, that the new Morse Midget recently placed on the market is a miniature counterpart of the Morse chain-and-sprocket coupling that has proven extremely practical on installations up to 5000 hp. Due to its all steel construction, it is stated it will give trouble-free service with exceptionally long life. Literature may be obtained by addressing the Morse Chain Co., Ithaca, N. Y.

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Improved Process of Making Sulphonated Castor Oil

The Royce Chemical Company of Carlton Hill, N. J., recently stated that by a special process of sulphonation it has been found possible to produce an oil of exceptional purity, and, contrary to a commonly employed form of bleaching, to produce through careful chemical control during the sulphonating operation, a product which is many shades lighter in color. This product is offered under the trade name of Castrolite.

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"A Saving at Every Turn"

Link-Belt Company, Indianapolis, Indiana, have just issued a new illustrated book, No. 1293, which describes the complete line of positive drives: Silent Chain; Roller Chain; Herringbone Gears; Herringbone Speed Reducers; Worm Gear Speed Reducers; Steel and Malleable Chains; P.I.V. Gear.

Many illustrations of installations of these positive drive units are shown, with accompanying description which tells of the broad scope of this manufacturing and engineering achievement, the company states. Literature will gladly be sent to anyone making a request of the company.

:: :: ::

Booklet Issued on Optical Instruments in the Textile Industry

Bausch & Lomb Optical Co., Rochester, New York, recently published a catalog entitled Optical Instruments in the Textile Industry. They state that the catalog was suggested by textile men.

It is pointed out that visual aids in the manufacturing of textiles are now considered a necessary part of plant equipment—that a more exact knowledge of the raw materials and the changes that take place in each manufacturing process is needed to produce a superior product.

Along this line Professor Edward R. Schwarz, of the department of Textile Technology, Massachusetts Institute of Technology, makes the following comments:

"Textile research must be either fundamental, applied, or advanced. Many of the materials to be investigated are microscopic in at least two of their dimensions. Hence, microscopical and accessory optical apparatus in general must be employed whatever the field of endeavors. The time when guesswork and unsupported theorizing were sufficient in textile man-

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BY USING H&B REPLACEMENT PARTS!

WE strongly urge that you use only H & B Replacement Parts in reconditioning your H & B Equipment. They promise lowest ultimate cost, reduce necessity for frequent repairs and keep equipment functioning at highest efficiency.

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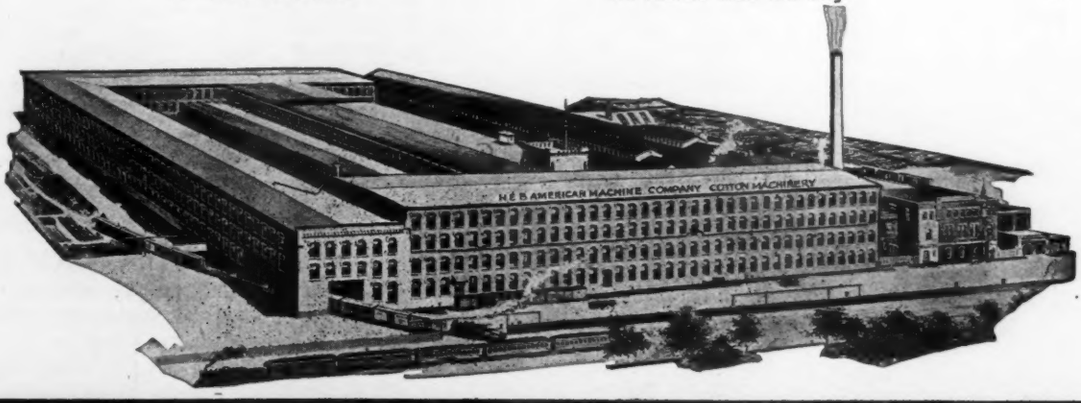

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ufacture and research has passed, and with the advent of precise instruments at reasonable cost and of wide range of utility, there can be no excuse for not actually seeing what the existing conditions are."

This very interesting catalog of Bausch & Lomb will be sent to those who make the request of the company.

:: :: ::

Repair Parts Bulletins

The Atwood Machine Company, Stonington, Conn., have just issued a complete set of repair parts bulletins, covering Atwood 5B Doubler-Twisters, B and C Spinners, 3F and 4F Winders, 1K, 7K and 10K Reels. All parts are attractively and clearly illustrated and are easily located in each bulletin.

:: :: ::

Pontacyl Brilliant Blue RR

E. I. Du Pont de NeMours & Co., Inc., Wilmington, Del., recently issued Bulletin E. 467, describing their new dyestuff, Pontacyl Brilliant Blue RR. This is an acid dyestuff that is especially recommended for women's wear such as dress goods, sweater yarns, etc. It is stated that it is extremely fast to fulling, acid and perspiration.

:: :: ::

Indicating Thermometers.

The Foxboro Company, Foxboro, Mass., recently issued a bulletin on dial type thermometers. This attractive 32-page booklet describes each type of Foxboro indicating thermometer. In addition, it contains valuable information on dials, ranges, bulbs, tubing, gaugeboards and other details. It is illustrated with pictures of typical installations. A copy of this bulletin, No. 148-2, may be secured by writing the Foxboro Company, Foxboro, Mass.

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Rockwood Drive

Chicago Belting Company, 113 North Green Street, Chicago, distributors for Rockwood short-center flat belt drives, recently issued a booklet giving specifications and prices of standard drives for drives ranging from 1 to 50 H. P. Much helpful data are given in this booklet, and it will be sent to those writing the company.

:: :: ::

Hemphill Enters Infringement Suit.

The Hemphill Co., Pawtucket, R. I., has just filed a suit in the U. S. District Court at Wilmington, Del., against the Great American Knitting Mills, Inc., charging infringement of one of the Hemphill Company's patents numbered 1,702,608 dated February 19, 1929, by use of a knitting machine manufactured by Scott & Williams, Inc., of New York. The suit asks for an injunction and damages.

NEWS ITEMS *with a Textile Slant*

Chemists and Dyers in Ga. and Ala. Organize

A group of approximately 50 men, representing mainly textile chemists, dyers, bleachers and finishers in Georgia and Alabama, met at the Georgia School of Technology, Atlanta, Ga., on May 9 for the purpose of forming an organization which would hold its meetings in the Georgia-Alabama territory. It was pointed out that a representative group operated plants in this territory, and that by having discussion meetings a little nearer than some of those held by other associations many men would be able to attend who have not been able to attend the other meetings. As raw stock, piece goods, hosiery, package, and indigo dyeing is done in the territory including Alabama, Georgia and South Carolina, it was felt that most phases of dyeing could be represented by the members making up the organization.

Dr. Charles E. Mullin, of Clemson College, S. C., briefly outlined in the beginning what he thought the purposes of an organization of this type should be. He said he thought such an organization should be one that would not strive to do all of the research work possible for the mills, but rather one that would attempt to sell the mills on research. He stated that this would in the end mean more to the mills than an organization that attempts to do the research work for the mills.

Definite action was taken when C. B. Ordway, of Alabama Polytechnic Institute, Auburn, Ala., made a motion that an organization be formed and that the problem as to whether or not the organization should function as an independent organization or whether they should affiliate with another group be decided later.

A committee for the purpose of preparing a constitution and drawing up the by-laws and to study the problem of affiliation consisted of the following men: C. A. Jones, Georgia School of Technology, Atlanta, Ga.; C. B. Ordway, Alabama Polytechnic Institute, Auburn, Ala.; M. T. Johnson, Hillside Cotton Mills, LaGrange, Ga.; E. A. Feimster, Eagle & Phenix Mills, Columbus, Ga.; W. F. Christman, Russell Mfg. Co., Alexander City, Ala.; Wycliffe Jackson, Lowell Bleachery, Griffin, Ga.

It was next decided to appoint a committee of four men to arrange a program for the next meeting, the date of the meeting to be announced later.

:: :: ::

Cocker Machine & Foundry Company Re-organized

Announcement was recently made of the re-organization of the Cocker Machine & Foundry Co., Gastonia, N. C. This was effected by the purchase by George B. Cocker, former general manager, of the interests of the former officers, T. L. Craig, president; D. J. Craig, vice-president, and J. Robert Craig, secretary and treasurer.

The new organization is headed by Mr. Cocker as president and J. B. Reeves as secretary and treasurer. Directors are Messrs. Cocker, A. G. Myers, S. N. Boyce, E. B. Denny and J. B. Reeves.

The concern was originally organized in 1913, and it is stated that from the beginning the concern has continually grown until today they are recognized as among the leaders in the manufacturing of the line of textile machinery in which they specialize, consisting of warpers, warp handling and equipment of all kinds.

The company has the distinction of having designed and built the largest single operating textile machine built in the world, it is stated.

:: :: ::

Roessler & Hasslacher Elects New Officers

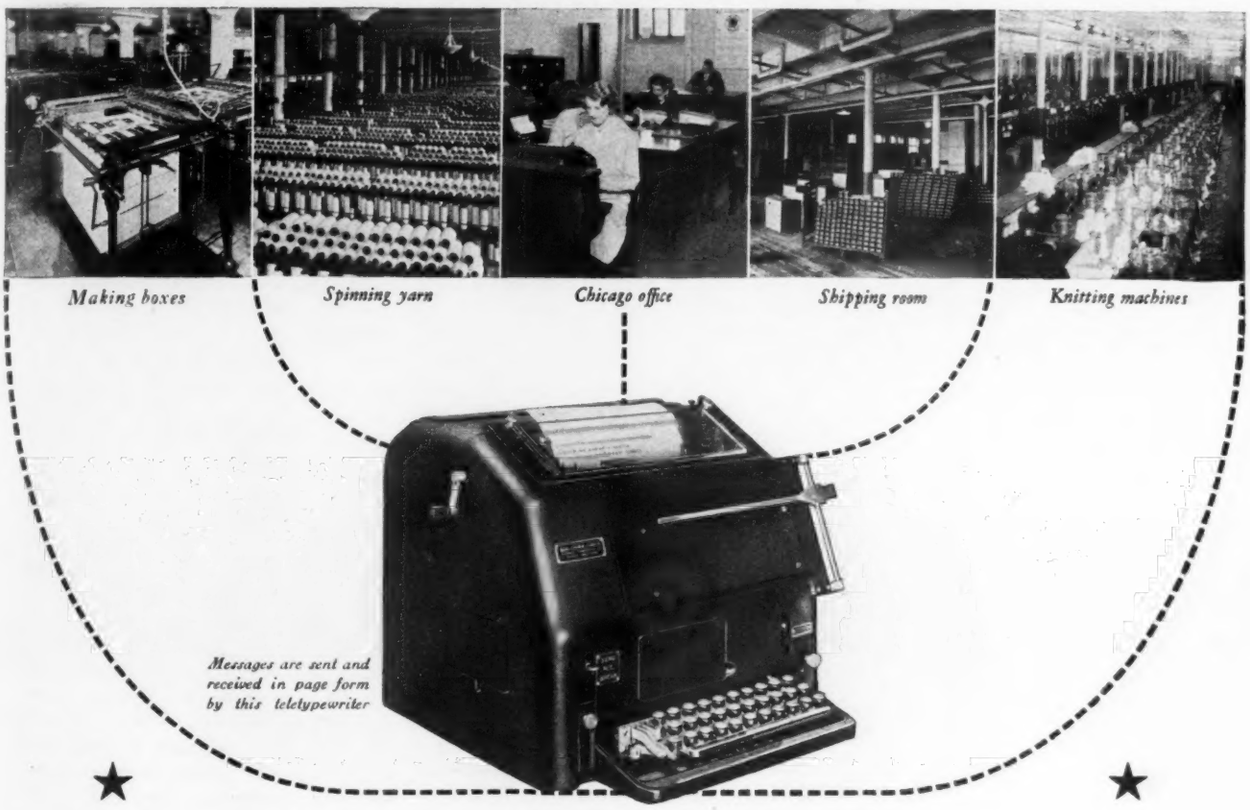
At the regular annual meeting of the directors of The Roessler & Hasslacher Chemical Company, Inc., the following officers were elected to serve for the ensuing year:

Chairman of the Board, W. F. Harrington; president, Hector R. Carveth; vice-president, Mortimer J. Brown; vice-president and secretary, Colby Dill; vice-president, Milton Kutz; vice-president, E. A. Rykenboer; treasurer, Albert Frankel; assistant treasurer, August Heuser; assistant secretary, M. D. Fisher; assistant secretary, E. A. Howard; assistant secretary, J. Carlisle Swaim.

Several vacancies which occurred since the last meeting were filled. Both of the new vice-presidents, Dr. E. A. Rykenboer and Dr. M. J. Brown, are from Niagara Falls and will continue to make their headquarters in that city. Mr. Colby Dill, the newly elected secretary, will make his headquarters in New York City.

TELETYPEWRITER SERVICE

REGULATES PRODUCTION AT THE SEPARATED PLANTS OF THE BEAR BRAND HOSIERY COMPANY



WITH headquarters in Chicago, office in New York, and factories at Kankakee, Ill.; Bradley, Ill.; Beaver Dam and Hartford, Wis., The Bear Brand Hosiery Company needs instant and continuous contact between all manufacturing units to guarantee smooth production. This is particularly important as the factories are dependent upon each other, one making yarn, another hosiery, another labels and boxes.

The vital contact is provided by Teletypewriter Service,* which brings the separated units as closely together as though they were "under one roof." Officials in the different cities communicate directly with each other in the space of minutes. Make decisions. Give instructions and have all their important "conversations" in typewritten form, insuring against errors.

"Teletypewriter Service lets us give our customers really exceptional service," one official declares. "A store may be out of chiffon hosiery on Friday and need a supply for Saturday's business. We teletype the message directly to the factory concerned—and the order is on its way to the store almost immediately." Billing and purchasing are centralized in Chicago. Duplicate sets of records eliminated. Traffic matters handled quickly and accurately.

Are *your* factories so located that Teletypewriters would speed your business—and cut costs? Your local Bell Telephone Company will gladly give you complete information about this new arm of business. Just telephone the Business office.

* * *

**Teletypewriter Service is a modern form of business communication, furnished by the Bell System. A message typed on one machine is identically reproduced at the same moment on all connected machines, whether they are a few feet or hundreds of miles apart. The service can be had for any number of hours each day from one upward.*

Fred Shaefer Now With F. C. Poley Co.

Fred C. Shaefer, well known in textile circles, has joined the forces of F. C. Poley Co., with offices at 1103 Oak Street, S. W., Atlanta, Ga. He was formerly associated with the American Moistening Co., and Parks-Cramer Co., having been connected with these companies as Atlanta representative for the past 12 years. He will have charge of the Georgia-Alabama territory in his new connection.

As recently announced in COTTON, the F. C. Poley Co. specializes in the sale and service of Lincoln-Twin Disc floor scrubbing machinery and Invincible heavy duty portable type vacuum cleaners, operating under a well defined policy of cost analysis and time study in their negotiations with textile mills.

Mr. Poley is an expert cleaning engineer, having been sales manager for the Selig Co., of Atlanta, and for the past ten years as Atlanta district manager, and as central division sales manager for Finnell System, Inc., of Elkhart, Ind. He made his headquarters in Chicago until this year.

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New Textile Chemical Laboratory Established

Adolph J. Winkler recently announced that he has severed his connection with the firm of Cox, Fuller and Mauersberger, consulting textile specialists, and that he had established a textile-chemical laboratory for the textile industry at 40 Worth St., New York City, where he will make analyses on yarns and fabrics both from the physical and chemical point of view.

He states that his work is the thorough investigation of cause of defects in cotton, rayon, wool and silk, and that his reports give not only the findings but contain helpful suggestions. Some of his problems deal with wrong constructions of weave, uneven dyeing, tender cloth, degree of bleach and mercerization, the use of wrong dyes, and improper oiling of rayon, etc.

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Fashion Show

Supporting the "back to cotton" movement, eleven members of the Philadelphia Club of Advertising Women played mannequin in a fashion show before nearly 500 guests and members, which was a feature of a card party held at the Penn Athletic Club recently, through the cooperation of Miss Kathryn I. Day, fashion adviser of the Durene Association of America.

The costumes, made of durene, included attractive sportswear, beachwear, afternoon costumes, Sunday night dresses and the most formal and sophisticated of evening gowns for spring and summer.

Clemson College Puts on Cotton Fashion Show

The Woman's Club, in cooperation with the textile department of Clemson College, put on a very successful Cotton Style Show on May 11. Miss Doris Hinman, educational speaker of the Durene Association, who had charge of the exhibit, made a very interesting and instructive talk in connection with the cotton garments shown.

Speaking in behalf of the importance of cotton as a present fashion factor, Miss Hinman said the "wear cotton" movement, now being wholeheartedly encouraged throughout the southern states, "comes at a particularly opportune moment both because of the economic importance to cotton growers and the fashion interests of well dressed women."

Miss Hinman grouped "fashion-mindedness among American women" under two heads: "interest in lines, designs, colors, and cuts; and interest in quality." In both, American women are becoming more critical, although in the matter of quality consciousness, it is the opinion of many that a much keener alertness is being expressed today than ever before in this country.

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H. H. Willis to Cooperate in Textile Research

H. H. Willis, director of the textile department, Clemson College, S. C., has just been appointed contact man for the U. S. Institute for Textile Research. This appointment was made by Warren E. Emley, chairman Research Committee, U. S. Institute for Textile Research. This is to be a cooperative undertaking in which Mr. Willis will be responsible for keeping the Institute informed of progress and facilities in textile research in the states of North Carolina, South Carolina, Virginia and West Virginia. He will not only keep the Institute informed with reference to research work in this district but also keep the manufacturers of these states advised as to what the Institute is doing in research. Mr. Willis urges the co-operation of manufacturers and those engaged in research work in advising him of the work, tests and changes made in their respective districts.

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Power Filter Division

L. W. Mercer, vice-president and general manager of the Square D Company, Detroit, Mich., has announced the establishment of the Power Filter Division of the Square D Company, with offices and works at Detroit.

M. D. Williamson will be in charge of the new division, which will manufacture Power Filter Units for the conversion of D. C. from A. C. for telephone, public address systems, talking picture equipment and other sound and signal apparatus.

The new unit is not to be confused with the ordinary rectifier as the Power Filter Unit supplies a pure, noiseless, non-pulsating D. C. current which supplants or supplements the use of storage batteries and dry cell, as well as motor generator sets now used for these purposes, it is stated.

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Change Offices

Lucien Buck, president of the Buck Dryer Corporation, has announced that the offices, laboratories and shops of the corporation, effective May 1, would be located at Manchester, Conn., in order to provide for an increased productive capacity.

It is stated that acquisition of adequate facilities at Manchester has made it possible to bring together engineering, research, sales and manufacturing departments, thus more closely co-ordinating all activities.

:: :: ::

A 21 Years' Chronology of Textiles

This year, The Textile Institute of Manchester, England, is 21 years of age, having been established in 1910. In celebration of its "coming of age" the Institute has prepared "A 21 Years' Chronology of Textiles," charting the development in textile manufacturing, from the English standpoint, from 1910 to 1931. A chapter is devoted to a record of the Institute's history, then follow nine other chapters dealing with development in fibers, yarns, fabrics, bleaching, dyeing and printing, analysis, testing, grading and defects, textile economics and welfare, textile research and education, and textile and general statistics. The latter discussion is issued as a separate supplement.

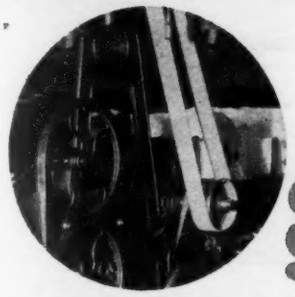
No effort has been made toward comments in connection with the subjects covered, only a brief chronological record of important developments during each of the 21 years in the period, together with illustrations of pertinent interest, is given.

Copies of the chronology may be secured from The Textile Institute, 16 St. Mary's Parsonage, Manchester, England. The price is five shillings per copy.

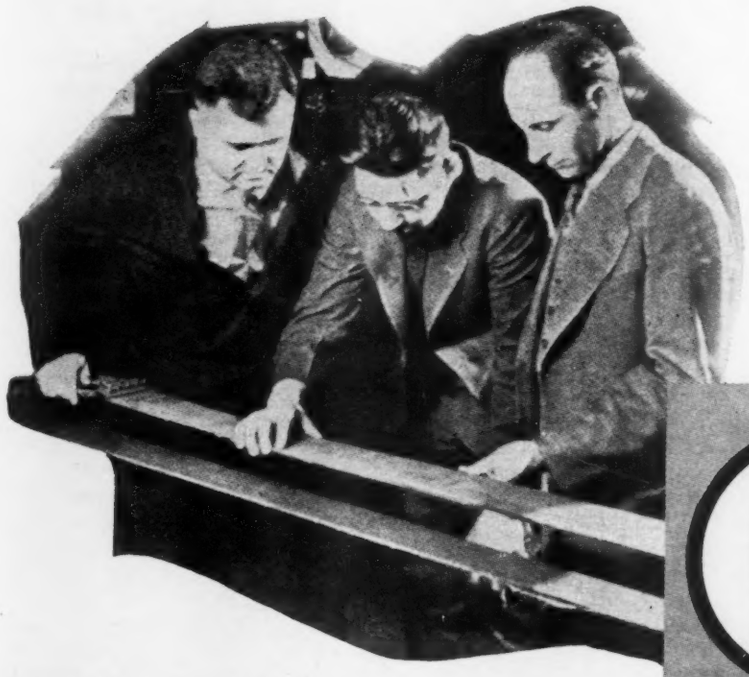
:: :: ::

Graver Appoints Eastern Representatives

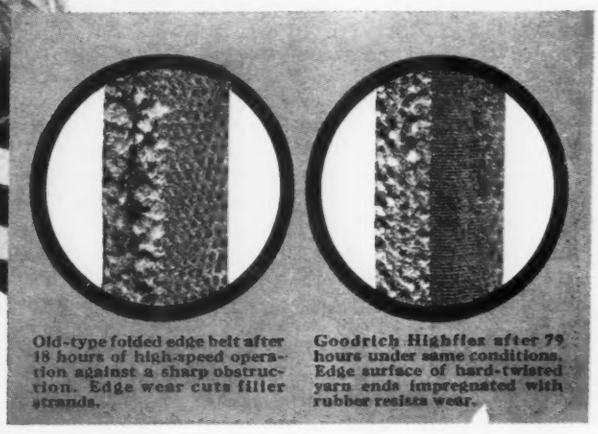
Graver Tank & Manufacturing Corp., East Chicago, Ill., manufacturers of water treating equipment, tanks, and special plate construction, have announced the appointment of W. B. Conner Company, Chrysler Building, New York City, as their Eastern representatives.



grips where leather slips . .



New Type rubber belting pays for itself in 7 weeks



Old-type folded edge belt after 18 hours of high-speed operation against a sharp obstruction. Edge wear cuts filler strands.

Goodrich Highflex after 79 hours under same conditions. Edge surface of hard-twisted yarn ends impregnated with rubber resists wear.

"WE have found the low percentage of slip of the Goodrich Highflex belt to be phenomenal," Mr. R. A. Butler, Technical Superintendent of Martha Mills, reports. "In fact, we had a large quantity of old leather belts which we replaced with Highflex. The increased production of approximately 3½% paid for the new belts in less than seven weeks."

Longer life of belts and pulleys . . . reduced production costs . . . depend on a low percentage of slip. Performance records *prove* that the *low* percentage of slip of Highflex belting actually results in *lower maintenance and production costs.*

This remarkable superiority is the result of a special Goodrich rubber compound that permits the use of duck having a harder, stronger weave. The duck is laid up in individual plies—*not folded back upon itself.* This exclusive construction gives greater elasticity, better pulley contact, less wear on pulleys and belt.

There's a place for Goodrich Highflex in *your* mill. Write for further information to The B. F. Goodrich Rubber Co., (Est. 1870), Akron, Ohio.

Highflex Belting

Another **B. F. Goodrich** *Product*

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

Carl C. Mattmann, Jr., well known woven fabrics designer and consultant, has joined the service department of Industrial Rayon Corporation, Cleveland, to aid in the expansion program of the company. Mr. Mattmann, a graduate of Philadelphia Textile School, has had a very wide and varied experience. Many of his years of service in the textile field were served as a works manager for two large eastern silk mills, and this was followed by several years with another silk mill in a sales capacity.

Mr. Mattmann.

Theodore Marvin was recently appointed advertising manager of the Hercules Powder Co., Inc., Wilmington, Del. He succeeds the late Nelson Greensfelder.

Charles Eugene Neisler, president of Neisler Mills, Inc., Kings Mountain, N. C., died during the month of April at the age of 63 years. He had been connected with the textile industry for a large number of years, having gone to Kings Mountain in 1893 as superintendent of Kings Mountain Mfg. Co. He built the Margrace and Patricia Mills in 1907.

R. F. Howell has been selected to succeed **Giles L. Wilson**, deceased, as field agent of the Cotton Textile Institute. Mr. Howell is a native of South Carolina, and has been connected with the Institute's cost department for several years. For 18 years, prior to his association with the Institute, he was connected with Fleitmann & Co., selling agents.

D. W. Bumgardner, formerly superintendent of the Eagle Yarn Mills, Inc., of Belmont, N. C., is now superintendent of the C. H. Bacon Co., Lenoir City, Tenn.

J. Arthur Boyd is now overseer of bleaching at the Certified Laboratories, Inc., Marble Falls, Texas. He has had a varied experience as overseer of bleaching of the Appleton Co., Anderson, S. C.; assistant in charge of bleaching and mercerizing with the Rock Hill Printing and Finishing Co., Rock, Hill, S. C.; and laboratory instructor in the textile chemistry department, Clemson College, S. C.

J. B. Pipkin, of Reidsville, N. C., was recently made president of the newly organized Edna Cotton Mills, of Reidsville; **T. L. Lewis**, formerly of the Williamston Mills Co., Charleston, S. C., was made superintendent; **Nelson N. Harte** was chosen as overseer of carding and spinning; **Bud Gilley**, as overseer of weaving; **John Cook**, cloth room overseer; and **T. H. Way**, master mechanic.

Z. Z. Callaway was recently made superintendent of the Dixie Mercerizing Co., Lupton City, Tenn., a position he formerly held.

Hext M. Perry, who has been with the Detroit Graphite Company for the past several years, recently resigned his position to become purchasing agent for a large number of mills in North and South Carolina. He succeeded the late **Luther McBee**, of Greenville, S. C. Mr. Perry will make headquarters in the Woodside Building, Greenville.

H. W. Kiser recently resigned his position as superintendent of the Mercury Mills, Charlotte, N. C., to accept a position as superintendent of the Aragon-Baldwin Mills, Whitmire, S. C.

W. A. Hope of Rockingham, N. C., has accepted the position of superintendent of the Republic Mills No. 1 and No. 2, Great Falls, S. C.

J. C. Cowan, Jr., has resigned his position of secretary and superintendent of the Stonecutter Mills, Spindale, N. C., to accept the position of general superintendent of the group of mills operated by J. Spencer Love and associates of Burlington, N. C.

W. V. Kirkland was recently made superintendent of the new Corinth Hosiery Mills, Corinth, Miss.

J. H. Hallman has resigned as overseer of carding at the Lockhart Mills, Lockhart, S. C.

J. W. Bost, formerly superintendent of the Grace Cotton Mills, Rutherfordton, N. C., has been made superintendent of the Stonecutter Mills, Spindale, N. C.

D. L. Jones, formerly with the Arkwright (S. C.) Mills, has become superintendent of the weaving department of the Phenix Mills, King's Mountain, N. C.

George F. Shipp, formerly superintendent of the Wilson (N. C.) Cotton Mills Co., was recently appointed to a similar position at the Caromount Mills, Inc., Rocky Mount, N. C.

W. V. Jones, formerly overseer of carding and spinning at the Wilson Cotton Mills, Wilson, N. C., has accepted a position with Johnson & Johnson at New Brunswick, N. J.

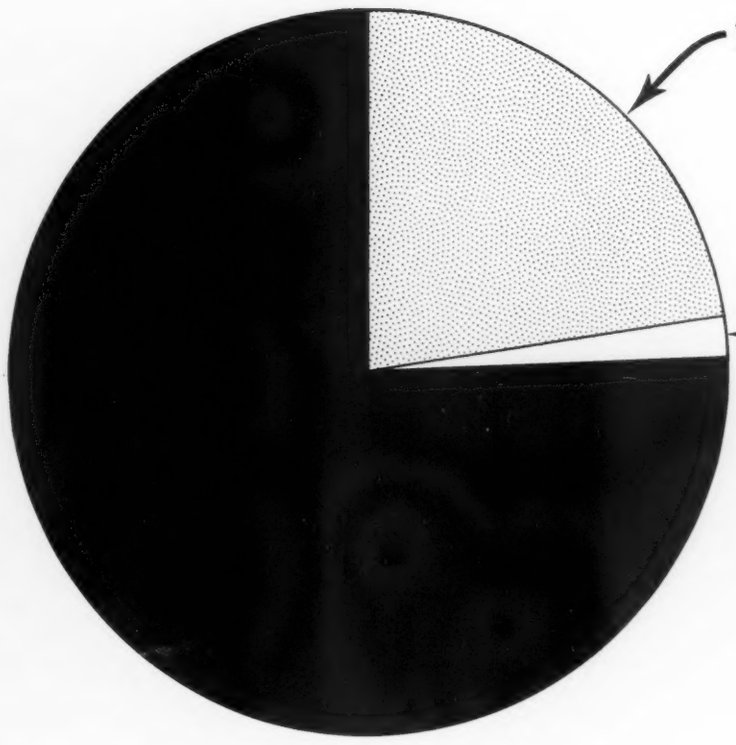
Kenneth F. Remington has joined the American Enka Corp. to do sales promotional and fabric development work, succeeding Carl C. Mattmann, Jr., who recently resigned. Mr. Remington was formerly connected with Remington & Webster, New York, and the Hunter Manufacturing & Commission Co.

R. V. Alexander has taken over his new duties as superintendent of the weaving department of Cartex Mills, Inc., Salisbury, N. C., formerly Vance Cotton Mills.

M. H. Whatley, of Opelika, Ala., passed away on April 24th at the East Alabama Hospital, in Opelika, after a short illness. He was 73 years of age. For more than 18 years, Mr. Whatley had represented The Akron Belting Company in the southern states, having been in partial retirement for the past few years. He was widely known among southern textile mills in which he had many friends. In his youth, Mr. Whatley was connected with the merchandising interests of the late Governor B. B. Comer. He succeeded his uncle, Mr. Brown Wilson, as southern representative for the Akron Belting Company, and severed his active connection with the concern in 1928. He is survived by his widow, three daughters, and two sons.

C. C. Neale, of the Toledo Scale Company, Toledo, Ohio, was recently elected president of the National Scalemen's Association. Mr. Neale is recognized as one of the foremost authorities on weights and measures, and has been connected with the scale industry for over forty years, the last eleven of which have been with the Toledo Scale Company.

189 WEEKS OF WEAVE ROOM TESTS SHOW



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"Cover the Earth" is no idle boast where Sherwin-Williams products are concerned. They have been tested for *endurance, beauty* and *economy* in the greatest paint-proving laboratory of all time—world-wide use under every conceivable extreme of climate and temperature! S-W Mill Village Paints are used on a convincing number of the most famous properties in the textile industry!

Inquiry will readily acquaint you with the reasons for this preference for S-W Mill Village Paint. It *costs less* because:

It *lasts longer* under all conditions of wear!

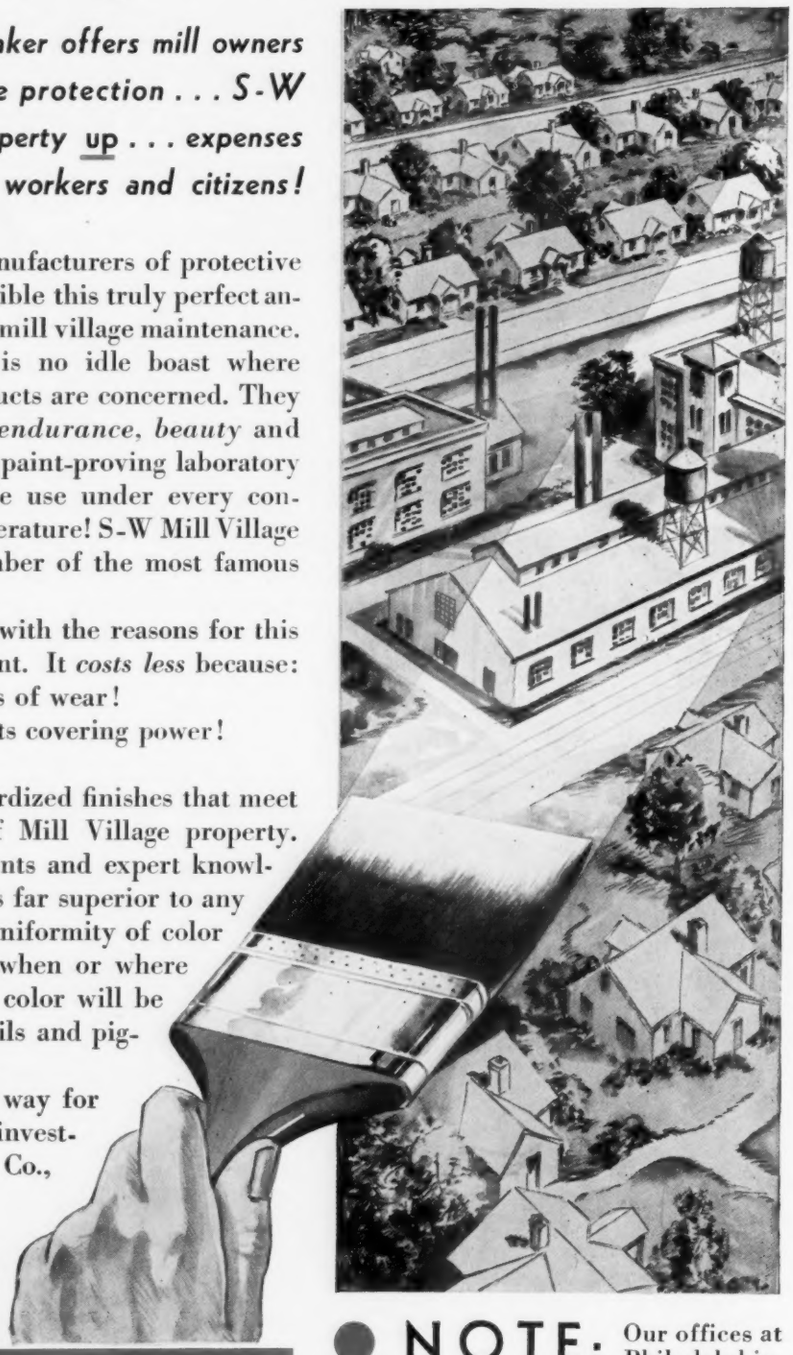
It takes *fewer gallons* because of its covering power!

It *looks better!*

S-W Mill Village Paints are standardized finishes that meet exactly the specific requirements of Mill Village property. Careful grinding of the finest pigments and expert knowledge of mixing produces paint that is far superior to any that is mixed on the job. Absolute uniformity of color and formula means that no matter when or where Mill Village Paint is purchased, the color will be standard and the balance between oils and pigments will be correct, ready for use.

Let a S-W Paint Engineer find a way for you to save money on your paint investment. Write the Sherwin-Williams Co., Dept. 729, Cleveland, Ohio.

Tune in Paul Whiteman and the Allied Quality Paint Men over N. B. C. network, Tuesday at 8:00 P. M. (E. S. T.)



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1234

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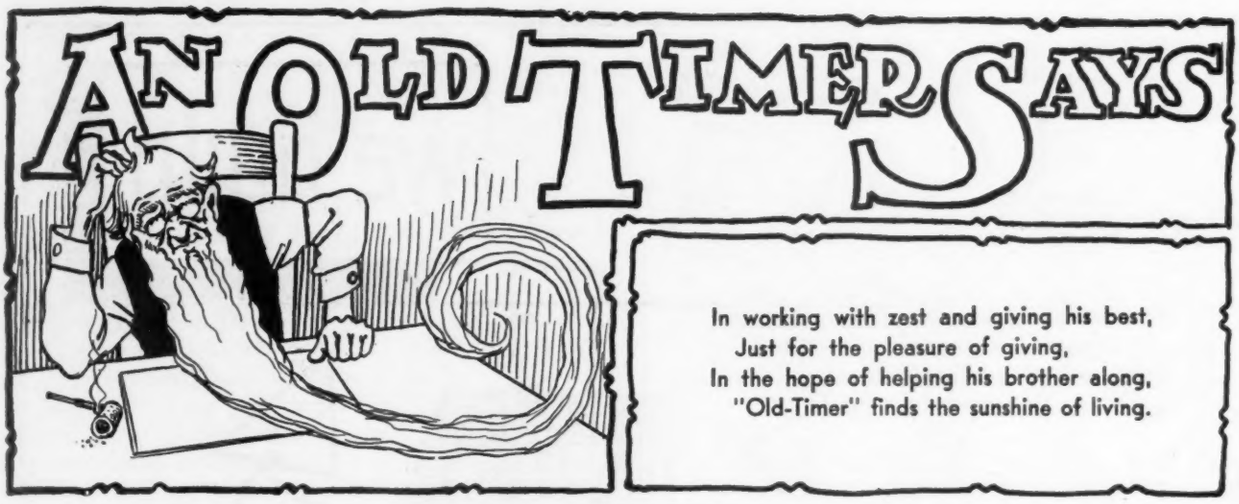

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

A Simple Secret

I HAVE TOLD you what this secret is so many times, in so many different ways, that it seems to me every man who reads OLD-TIMER should certainly know all about it by this time and be deriving some, yes, a great deal of benefit by it.

Isn't it strange that a man who has enough brains and has proven himself somewhat above the average by being made an overseer or superintendent—I say, isn't it strange that he has to be told over and over again the little secrets of success, or what it takes to get promotion?

You know, an overseer's or superintendent's job is just telling people—weavers, fixers, spinners, section men, frame hands, etc.—over and over again how they must do and must not do certain things about their work.

But darned if those same overseers and superintendents can apply the same reasoning to *themselves*. I know some men, and you do, too, very efficient overseers and superintendents, that simply cannot be overseers and superintendents over themselves.

I have realized all my business life that Human Nature was a strange animal; but I simply cannot solve that problem.

Well, I guess if it were possible to get more overseers and superintendents to learn the "simple secret" there would not be so blamed many good jobs going a-begging.

One of the hardest problems for the head of any large corporation or firm is to find competent men. Isn't it simply outrageous to think of such a condition—but if you doubt it in the least, just start out and ask a few big men—men who are at the heads of large corporations.

Yes, I know what you are saying right now, "Well, I would like to have one of those good jobs—let OLD-TIMER show me where it is." That's not the trouble at all, brother—there are thousands and thousands of men in the same boat with you—most all of us want one of those big jobs—

Then you probably ask—"Well, what are you driving at, anyway? Why don't I get one of them if they are running around loose like you say they are?"

The "simple secret" is that you have not prepared yourself for one—you have wasted enough time in the last four years to have gained more *knowledge* about your work than you could possibly have gained if you had been in college those four years.

Guess you don't believe that—well, it is certainly a fact just the same, and the sooner you realize that fact and start in on a systematic schedule of study and reading, the sooner will you be on the road.

The man who has risen to be overseer or superintendent has a ten to one better opportunity to get knowledge than the college man has.

Why and how: simply because your practical work and every-day experience gives you that opportunity to *apply* what you are studying while the college man must wait until he gets the kind of job you have before he can start to apply *his* knowledge.

The "simple secret" is *knowledge—information*—knowing how to do it better than the other fellow.

I can well remember when I was in school how I did hate to study Latin. I could not see to save my life how Latin would ever do me any good in the work I intended to follow. I worried my father and my teacher until they let me drop it—I thought I surely had put one over on the teacher—but in later years I found out to my sorrow that I had put one over on *myself*.

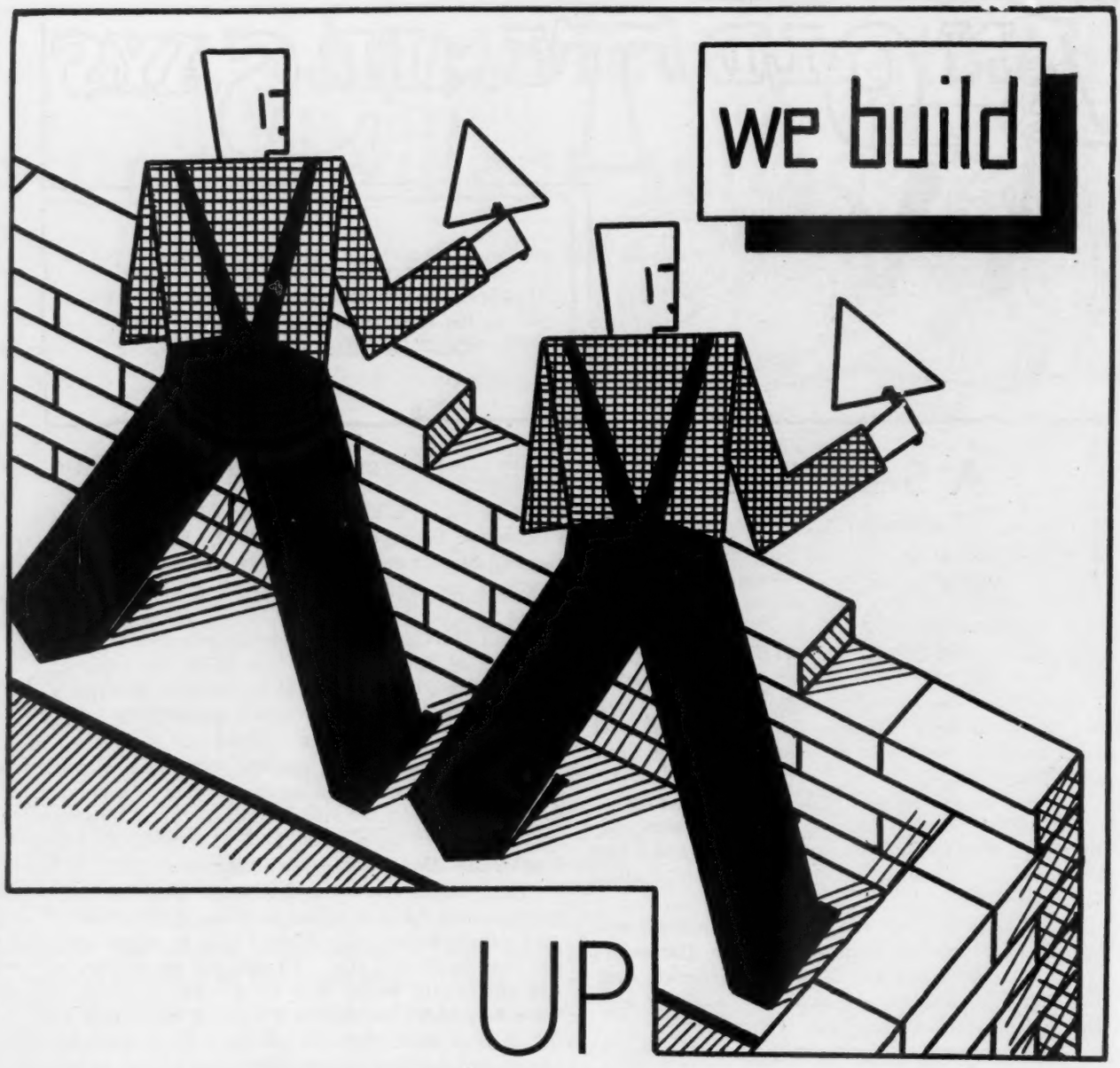
Let me tell you one little instance: I was helping to install machinery in a mill during the Spanish-American War.

Well, newspapers were not so prolific back in those days as they are now (and nickels were not either) so at noon time we would all sit around together eating lunch while one man would read the paper.

In reading about the war he came across the word submarine, and as none of us had ever heard the word before, he turned to me and asked, "What kind of a vessel is a submarine?" (Now this may sound rather funny to some you young fellows that know all about submarines, airships, engines, radios, etc., these days.)

"Search me," I replied—and he continued to read —meantime I was thinking about the word, submarine.

Finally I said, "Mr. Smith, 'sub' is a Latin word meaning 'under' and 'marine' is a Latin word mean-



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ing the 'sea'; then it must be a vessel which goes under the sea."

Well, they all gave me the horse laugh. How in the devil could a vessel go under water? How did I think the men could live, or did I figure they ran the darn thing with fish, etc.?

But a few days later, Mr. Smith (our foreman) read another account of a battle that explained about the submarine going under the sea.

Then, by gum, I had the laugh on them. I think I felt bigger than Dewey. And, incidentally, that little instance taught me a lesson—I got out my old school books and went down after it.

See what I am driving at, brother? There never was a time in the history of the world when it was so true that—Knowledge is power.

Incompetence—failure to advance—not being ready for that big job when opportunity comes rushing upon you before you know it—is all due—*all* I say, not part of it—but is *all* due to a lack of information—lack of knowledge—and not lack of ability.

You have the *ability*—you have proven that to yourself and to others by getting to be an overseer or superintendent.

Tell me some way I can say it to you so dog-gone—dad-gummed—confounded hard that it will knock you down.

You have got the *ability;* but, darn your lazy hide, you will not improve it by obtaining the *knowledge* necessary to make you a big man.

That's not very nice writing, I'll admit, and I suppose I am in for a good calling down from that bird COTTON calls its editor. (He has called me down so much I am getting accustomed to it.)

But a man has simply got to talk plain United States sometimes to get any results, and I have tried about every way I can think of to get you to wake up. But when you realize that the "simple secret" I am trying to tell you about is so *easy* to solve I know you will not blame me because you will feel like kicking yourself over the lot for not going down after that knowledge sooner.

Benjamin Franklin said: "The way to success is as plain as the way to market."

Study the lives of all the big men you know of and you will find that their success is due to the fact that they constantly acquired all the business knowledge that they could get their hands on—knowledge which enabled them to take advantage of *every* opportunity that came their way.

Don't you hold the job you now have on account of what you *know?* Sure you do! Well, just add the letters l-e-d-g-e, to that word *know*, and you have the "simple secret" of all your future success—your income—your happiness.

Success in any line of work comes to the man who knows *what* to do, *when* to do it, and *how* to do it—and that takes *Knowledge*.

(The foregoing article by Old-Timer appeared originally in our January, 1926, issue, and is reproduced here by request. Furthermore, to those readers who are ambitious enough to want to learn more of this "simple secret," Old-Timer has laid out a systematic course of study, and he invites any readers who have the interest and grit to carry it out, to apply for it. To them, an outline will be sent free of charge.—The Editor.)

GUARDING AMERICAN INDUSTRY

NO ADMITTANCE

DAMAGE SUITS--costly? Yes. Both in actual cost and prestige. The public is only too willing and ready to accuse a "corporation" of negligence despite contrary evidence.

Why pay the bills for accidents and jeopardize the prestige of your organization? Accidents can be stopped!

An Anchor Fence is the only positive way of preventing mishaps. An Anchor Fence controls your ground and keeps the curious public at a safe distance.

The cost of defending a damage suit will more than pay for an Anchor Fence installation.

Have the local Anchor representative submit a plan and estimate.

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What it Does and How to Do it

Second Edition, Revised and Enlarged

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Originally printed four years ago, twenty-five thousand copies of *"Budget Control"* have since been distributed. The favorable reception widely accorded it by business men, educators and the press, has led us to provide a second edition, enlarged and brought up to date. There are forty pages and six exhibits. *Mailed on request.*

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Some Questions On Slasher Gearing.

These questions may develop some interesting information. Watch for the answers soon.

EDITOR COTTON:

I should like to see the following questions discussed in the "HOW OTHER MEN MANAGE" section:

What is the proper method of determining the correct size of change gear for driving the cylinders of a positively driven slasher? Should the surface speed of the large cylinder be greater or less than that of the small cylinder?

CONTRIBUTOR NO. 5022.

Controlling Bad Work from the Card Room.

EDITOR COTTON:

In a recent issue of COTTON, "CONTRIBUTOR NO. 4759 submits the following problem, "How is the best way to control bad work which comes from the card room to the spinning room; that is, the slugs, black oil, etc., in the roving? We pay our spinners a premium for picking bad roving out of the creel. This roving is returned to the card room and is inspected there."

I am not a regular contributor to your discussion department, but I have received so much help from it that I feel it is my duty to offer some help if possible.

With regard to reducing gouts and bad roving, I do not suppose that this man allows a fan or flap to be used to fan off loose lint from the machines in the card room, as I think every one will agree that this is the cause of much bad roving. We have found that by cleaning our motors at the noon hour, while the machinery is stopped, and covering the machinery and work in process that is under the motors, including the cans and bobbins at the back and front of drawing, slubbers and speeders, that we reduce this materially. We use brown wrapping paper for this covering, and find it satisfactory and economical, as the lint can be readily brushed off and the paper rolled up and used time and time again. Any bunches or slugs that do not fall on this paper, but catch in the stock, should be removed before the machines are started. All overhead cleaning should also be done while the machinery is standing.

The clearers on drawing, slubbers and speeders should be kept clean and the cloths renewed if badly worn. The nap can be cleaned and scratched up with card clothing, if not worn too badly, so that bunches will adhere to the clearers instead of passing through into the stock, causing bad work.

Both front and back rows of flyers should be laid up when the frame is doffed, and the small bunches that collect around the top of the spindles should be removed before the full roving is taken off, as these bunches will come off inside of the bobbin and be pushed out by the skewers in the spinning room and find their way into the yarn. The carriages, guides, and backboards should be wiped off while the frame is empty. The flyers on the slubbers and speeders should be kept clean and free from all bunches that collect on the outside. As the flyers revolve, these bunches fly off and catch in the ends and cause gouts.

Creel stands and rods, handles and handle rods should be kept clean to prevent bunches from falling and catching in the roving. The loose lint that settles on top of the creels should be wiped off before laying up a new creel of roving. Slubber creels should be changed on empty doff so that any bunch or defect caused by piecing will be pulled off at the speeders. Speeder tenders should be taught not to lap ends while creeling, but to piece end to end, and also when piecing ends at the front, they should not put in excessive twist or hard black places.

The rolls on the slubbers and speeders should be cleaned once each day, top and bottom. Bunches will collect between the bottom rolls at the stands, and if not removed will be the cause of many gouts, as they are not easily seen and will break off small bunches at a time. The backs of the slubbers and speeders should be cleaned while the frame is standing, as the draft caused by flyers will carry any loose lint out onto the bobbin. When an end comes down on the fly frame, short bunches of lint will fly and catch to the ends near it, and cause gouts. These should be removed before starting the frames.

As to black oily roving, this can be caused by hangers and motors dripping on the roving in the boxes, after it has been doffed. Other causes are: Help handling the roving with black oily hands, bobbins dropped under frames and around gearing; too much oil in the stands; bobbins fitting too tight on the bobbin gear collar, which when doffing will come off with the roving and fall in the box; the track

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WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

that the coiler revolves in on the drawing frame having too much oil so that when the can gets full it will raise the coiler and cause the oil to get onto the stock.

Most all oily roving is caused by too much oil somewhere, and the best way to eliminate this is to train our oilers to put the proper amount of oil in the proper place at the proper time.

It may be all right to pay spinners a premium for picking out bad roving, as this man says he is doing, but I would prefer making every effort to prevent the bad work from going to the spinning room. We make a chart and put it where the frame hands can see it, marking on it the number of bad bobbins from all causes made by each frame hand each week, and we also show bad work to the hands who made it. When in our opinion an operative is too careless, we take steps in one way or another to correct the situation.

CONTRIBUTOR NO. 4647.

Answers to Carding Questions.

EDITOR COTTON:

You have been publishing some very interesting articles recently on subjects pertaining to carding, so I thought I would like to say a few words concerning the different subjects being discussed.

In a recent issue of COTTON there were some questions asked by "T. A. D. (GA.)" about carding that interested me very much. In one of his questions he wanted to know of our experience with vacuum card strippers, and whether or not the cards stay sharp longer when stripped with the vacuum strippers than when stripped with the old time band and hand stripper. It is my belief that the brush stripping is best for putting a point on the wire and keeping it there because the brush removes all of the foreign matter which clings to the points, as well as that on the side of the wire, which I do not believe the vacuum system will do.

I could never see how the brush hurts the wire of the cylinder and doffer providing it is covered properly and is set into the wire properly. If the brush hurts the wire, as some mill men claim it does, then the continuous stripper that has been talked about so much, it seems, would certainly ruin the wire completely.

"T. A. D." also asked how often comb boxes should be oiled and how often they should be cleaned out. The best method that I have seen of cleaning them out is to boil them out when the oil gets rather thick. After this is done it is a good idea to run a wire into the oil grooves to make sure that there is a clear passage. If obtainable, compressed air is good for cleaning out the grooves.

Now a few words about his question concerning the grinding of the card. He asked, "Do the traverse grinder rolls on the cards sharpen or grind the points on the card clothing, or does the clothing sharpen itself against the grinder rolls?" There is no doubt but that the grinding rolls sharpen the wire. They are rotated at a speed of from 800 to 900 feet per minute.

The direction of the rotation of the cylinder and doffer and the inclination of the teeth are such that the grinding roll grinds the back of the teeth. At the same time, because of its traversing motion, it also grinds the sides of the wire.

The grinding roll does not merely touch the wire but produces a slight pressure on it which tends to force the point of the wire forwards toward the foundation of the clothing. The reversing of the disk takes place beyond the end of the cylinder and the doffer where the rolls have a slight dwell during the reversing of the traversing rolls.

I want to take this opportunity to disagree with some of the statements made by "C. R. D. (N. C.)" in his article, "Some Points on Card Grinding", which appeared on page 415 of the February, 1930, issue of COTTON. An extract from his article reads:

"The first thing after the card has been stripped is to remove all of the fly waste from underneath the card, and then from around the arches. Next put on the belt that is to run the doffer during the grinding operation, and reverse the driving belt on the cylinder and start up the card; however, the doffer should be backed off from the cylinder to a full gauge, so there will be no chance of its coming in contact with the cylinder during the operation of grinding."

Gosh! I don't get the idea of all this. I can't see any reason why a grinder should have to go to all this trouble before he starts to grind a card. If it is necessary to draw out the doffer, I would think it would also be necessary to draw out the doffer comb. The comb being set to the doffer to a 10/1000 or 15/1000 gauge and doffer drawn out to a 34/1000 gauge, the grinder would have to draw out the comb in order for the doffer comb to be clear of the doffer. If a grinder has to do this every time he grinds a card, along with resetting, and he grinds three or four per day—well, he will be some busy man. Grinders in most mills have enough to do without doing all this unnecessary work.

A real grinder does not need to draw out his doffer or any other part of the card if he sets his card properly after grinding. It is a very easy matter for a card grinder to find out whether or not the doffer is clear of the cylinder.

In setting grinding rolls, I think all grinders should be compelled to use a gauge. I have seen some grinders take the rolls and put them in the bearings and put on the belts and bands without even seeing whether the rolls were clear of the cylinder and doffer. The grinder would then start up the card and upon seeing a large number of sparks flying around would get excited and yank the grinding rolls out of the bearings. In a large number of cases the belts and bands have been forced off the pulleys and get wrapped around the side shaft, breaking brackets and other parts of the card. Hence, if all grinders would use gauges when setting grinding rolls, they would not only save themselves a great deal of trouble and time, but would also save the company a lot of unnecessary expense.

Mill men differ considerably as to how long a card should be ground. Some seem to feel that five hours is sufficient, while others are of the opinion that an entire day should be given to the grinding process. However, the grade of the cotton being run and the condition of the card, along with the production to be turned off by the card, are factors that should be con-

sidered in allotting the amount of time for grinding. Where a grinder only gets around every four or five weeks I think the card should be ground a full day to keep it in good shape.

T. A. B. (MASS.)

A Further Discussion of Starch on Loom Belts.

Says belts become stickier due to increased humidity in weave rooms.

EDITOR COTTON:

I have read with much interest the different answers that have appeared from time to time to the question that was asked by "CONTRIBUTOR No. 4768" in regard to putting starch on loom belts. Since there have been several different opinions given, I felt that it might not be out of order for me to give my views on the subject.

One contributor, "H. C. (PA.)", had the following to say about starch on loom belts: "I am inclined to believe that an overseer who permits his loom fixers to apply corn starch or any other powder such as rosin or fullers' earth to a belt is guilty of wasting and spoiling a good belt, when he permits this to happen.

"The only reason for applying starch or any powder to a belt is to make it increase its traction and prevent slipping. This is only a temporary relief at the best. It does not cure the trouble, and a short time after it is applied the belt slips again and more is applied. In a short time, the grain starts to peel off of the belt and everyone wonders why the belt gave out and thinks that it was a bad belt. In reality the belt was consigned to an early doom by the treatment with starch and other powders."

It is quite evident that "H. C." has had very little experience fixing looms with belt drives. In the first place, starch is not applied to give the belt traction but to decrease the adhesive condition in which a belt sometimes becomes.

I have noticed the last few years that belts seem to gum more and become stickier than they did years ago. I do not believe it is in the belt, but rather because we are running with more humidity in weave rooms now than we did years ago. When a belt becomes wet it will slip and this slippage is what produces the gummy substance on the face of the belt. It will always be found that a slicky belt is too slack.

My idea of a properly prepared belt is to cut the belt to the proper length and apply tallow to the surface that comes in contact with the pulley, then apply starch to the belt until a smooth running loom is the result. (Care should be taken to put the starch on the belt rather than the floor).

"H. C." seems to feel that a loom belt should not slip. I differ with him on this point. At each pick and transfer of the bobbin we want a slight slippage, as this is what gives the loom the smooth feel that is absolutely necessary in a good running loom. Applying tallow to the belt tends to seal the pores against moisture and the starch will absorb the moisture that is already in the belt. If the belts are kept at the right tension they will give very little trouble.

J. H. (GA.)

Comments on Way Lap Should Point on Leather Rolls.

Says experiments have proven that the top lap should not point in the same way the roll is running.

EDITOR COTTON:

In the October, 1930, issue, "L. W. N. (N. C.)" asked the following question: "Which way should leather top rolls be put in the spinning frame, with the point, or overlapping of the lap, pointing toward the front or toward the back when the lap is on top?"

We are all more or less familiar with the little dot, arrow, index and other marks which roll coverers place on the leather top rolls near the seam or lap, and it has become so much of a habit to see them that some of us lose sight of their real reason for being there.

Off hand, it would seem that the top lap pointing in the direction it runs would, by reason of being driven by the steel roll, be pressed toward the point of the lap, thus preserving the smoothness of the seam. However, experiments have proven that this is not the case, but that with the lap pointing in the same direction the roll is running there is a greater tendency for the lap to separate. If it is otherwise, why do we have the dots, etc., directing that the top lap point toward the front?

I believe that the weight on the top roll, creating a pressure of 15 to 20 pounds, keeps the lap or seam creased so that the flutes of the steel rolls do not have a great tendency to tear the lap apart. With a lap properly cemented with a good grade of cement, the seam will last a long time even if the roll is placed in the frame to run in a direction opposite to that indicated by the dot. If we were able to disregard the dot and place the roll to run either way without running into trouble it would surely be fortunate for us.

The question of top leather rolls is one that should demand a lot of attention, for it is certainly one of considerable expense. Any thought and effort devoted toward the improvement of roll covering and the prolonging of the life of the rolls certainly would not be mis-directed fire.

Much of our roll trouble comes from the use of inferior roll covering products. It also often happens that a very poor glue will be used to put on good flannels. All materials used must be selected with great care if we expect satisfactory service from our rolls.

Great care should be exercised in making up the glue for the flannels and the cement for the laps. It should be seen that the cement is cooked just the right amount and that it is kept at the proper temperature while using. The flannels and cots should be cut to the exact size so that they will fit on the roll tight enough to draw the roving. The cot, however, should not be stretched for this will make a poor drawing surface and also shorten the life of the roll.

I would again like to repeat that too much attention cannot be given this phase of work. I would like to see more discussion of it.

CONTRIBUTOR No. 4774.

Maintaining a Constant Water Ratio in Size.

Some interesting conclusions, from hypothetical calculations, to show that by super-heating steam, or increasing pressure, a constant ratio of water can be maintained in the size mix. Comments on this discussion, from interested readers, will be especially welcome.—The Editor.

EDITOR COTTON:

Boiling by open steam coil versus boiling by closed steam coil was debated pro and con at a recent textile meeting during discussion of slashing. Briefly, some chose the open coil because the closed coil becomes coated with hard-baked size. Others preferred the closed coil because the condensed steam from the open coil thins out the size, causing the last part of the size drawn from the kettle to have a greater water ratio than the first.

However, this condition need not be true of the open coil. In fact, the opposite condition can be obtained with this same open coil, if desired. The following calculations will serve to prove this statement and at the same time suggest several methods of securing complete regulation of water ratio throughout the boiling and using of the entire kettle of size:

Assuming these impossible conditions:

Boiler pressure	0 lbs.
Radiation of pipes	0
Radiation of kettle	0

there would be no change in water ratio, since each pound of steam would expend 970 heat units in condensing, and if none of these heat units was spent by radiation, convection, or conduction, they would in turn evaporate exactly one pound of water.

But there *is* a heat loss from both the steam pipes and the kettle.

Assume this possible case:

Boiler pressure	25 lbs. per sq. in.
Steam used	100 lbs. per hour

Radiation, etc:

Heat units lost—pipes	1700 B.t.u. per hour
Heat units lost—kettle	1700 B.t.u. per hour
Total loss	3400 B.t.u. per hour

Then:

100 lbs. saturated (not superheated) steam at 25 lbs. pressure contains $100 \times 1169 = 116{,}900$ B.t.u. total heat.

$116{,}900 - 3400 = 113{,}500$ B.t.u. total heat remaining in the 100 lbs. of steam used per hour.

$100 \times 180 = 18{,}000$ B.t.u. total heat of liquid.

$113{,}500 - 18{,}000 = 95{,}500$ B.t.u., heat available for evaporating water in kettle.

970 B.t.u. = heat units required to evaporate 1 lb. of water in kettle.

$\frac{95{,}500}{970} = 98.5$, No. of lbs. of water evaporated per hour.

$100 - 98.5 = 1.5$, No. lbs. of net liquid added to kettle each hour.

Now, if instead of having only 95,500 B.t.u. available for evaporating water in kettle, we had 97,000 (100×970) available, the weight of water evaporated would exactly equal the weight of steam delivered to kettle, which is 100 lbs. per hour.

To bring about this condition, the total heat of the original steam would have to be increased by:

97,000 — 95,500 or 1500 B.t.u.

$116{,}900 + 1500 = 118{,}400$ B.t.u. total heat required for the 100 lbs. steam.

Or $\frac{118{,}400}{100} = 1184$ B.t.u. per lb.

Referring to Steam Tables, it is found that steam at 25 pounds per square inch boiler pressure, 30 degrees superheat, has a total heat of 1184 B.t.u. Also, that saturated steam at 75 pounds per square inch boiler pressure has the same total heat of 1184 B.t.u.

Therefore, increasing water ratio in the size kettle (also size box) can be partially or totally eliminated by either superheating or increasing boiler pressure, all other conditions remaining the same.

Contrary to what might popularly be expected, steam at 25 pounds boiler pressure, 30 degrees superheat, has a lower temperature (297 deg. F.) than saturated steam at 75 lbs. pressure (320 deg. F.) and having the same total heat units per pound. This fact would favor the use of superheat instead of higher pressure, since radiation losses, increase with temperature. Furthermore, small steam leaks, if any are present in steam line or boiler, permit losses in proportion to pressure.

Here is another remedy for this increasing water ratio:

Increase the amount of steam used per hour. Proof: The losses of radiation and convection of pipes and kettle are practically constant for any one temperature, regardless of the amount of steam involved. When this constant loss is shared by a greater number of pounds of steam, each pound of which originally had a surplus of heat units beyond what is needed to evaporate one pound of water, these additional surpluses will take care of additional portion of the heat losses.

CONTRIBUTOR NO. 5034.

How to Obtain Evener and Cleaner Laps.

This writer gives a very interesting discussion on how to make laps with fewer lumps in them. Read it.

EDITOR COTTON:

In the October issue, "CONTRIBUTOR NO. 4838" had the following to say:

"I would like to apply to your readers for some suggestions as to how we may secure cleaner picker laps for our cards, at the same time making them with less lumps in them.

"We run 1 3/16-inch cotton. We do not have any opening equipment. The bales are mixed ten at one time, by hand, and aged in bins for about one week.

"We have three processes of pickers, 1900 model. The first or breaker picker has two beaters, a spiked or porcupine type, and a two-blade beater. The fan speeds on the breaker are, first, 1,150 r.p.m., and, second, 1,050 r.p.m. The intermediate machine has a two-

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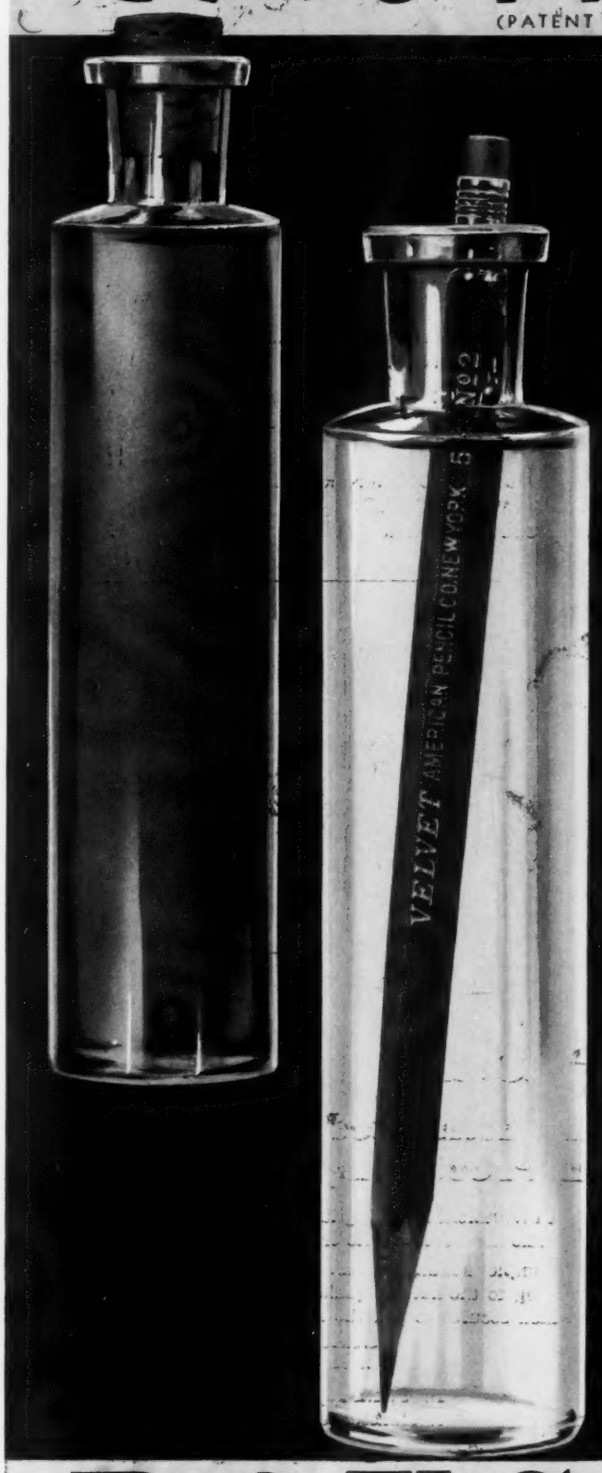

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blade beater, and a fan speed of 1,150 r.p.m. The beater in the finisher is a Kirschner or carding type, and the fan speed is 1,000 r.p.m. Our production is about 6,000 pounds a week.

He states he is using 1 3/16-inch cotton, a good grade of cotton. The chances are he is on fine counts and doing combed work.

It must be that his beaters do not perform their full duty. If the porcupine beater has been running all the years he spoke of without the fingers or spikes being sharpened, they are probably worn so much that their action on the stock has very little or no cleaning effect. As he has no opening equipment, the beaters must do the opening. Therefore, the fingers or spikes on the beaters must be sharp and properly set to the feed roll, say 5/16-inch on the 1 3/16-inch cotton.

I assume that "CONTRIBUTOR No. 4838" is using a standard type of grid bar. This is a very important feature in the operation of a picker, and means much more than the majority of us realize. If we keep them properly adjusted and the edges of the bars smooth by keeping them free from damage by pieces of bale ties, buckles, and other foreign substances going through in the stock, we will have cleaner laps and less lumps. Rough places on the grid bars will cause tufts of cotton to hang for a few seconds, then let go, and, of course we have a lump.

In order to set the grid bars properly, it may be necessary to try a few different settings to determine the most satisfactory. I consider it good practice on a breaker to set the top bar to 5/16-inch and the bottom 7/16-inch from the beater, then vary these settings until the desired setting is obtained.

The size and speed of the beater, and the amount of stock which passes through the picker in a given time, govern very largely the amount of cleaning. It is very important that these factors be kept in correct proportion, for too much speed of the beater, even though it might clean better, will damage the stock. A range of from 36 to 50 beats per inch is a good speed to run.

I have found a setting of ¼-inch very satisfactory for the distance of the blade beater on an intermediate from the feed roll. I have also found that a setting of ¼-inch for the top grid bar and ⅜-inch for the bottom grid bar to be very satisfactory if the beater blades are sharp.

On the finisher picker the Kirschner or carding type of beater must be in perfect condition. Every point should be sharp and of the correct length and the beater set to 3/16-inch from the feed roll, 3/16-inch from the top grid bar and 5/16-inch from the bottom grid bar.

"CONTRIBUTOR No. 4838" stated that his fan speeds were 1,150 r.p.m. for his porcupine beater and 1,050 r.p.m. for his two blade beater. I think these speeds are okeh.

Several things to check up on in order to get more even laps are: that the draft boxes in all the pickers are being kept thoroughly cleaned; that the draft doors are so regulated as to direct the air currents evenly upon the screens; check up on the screens; that all outlet pipes from fans to the dust room are clean and open to allow air to pass freely and prevent back draft

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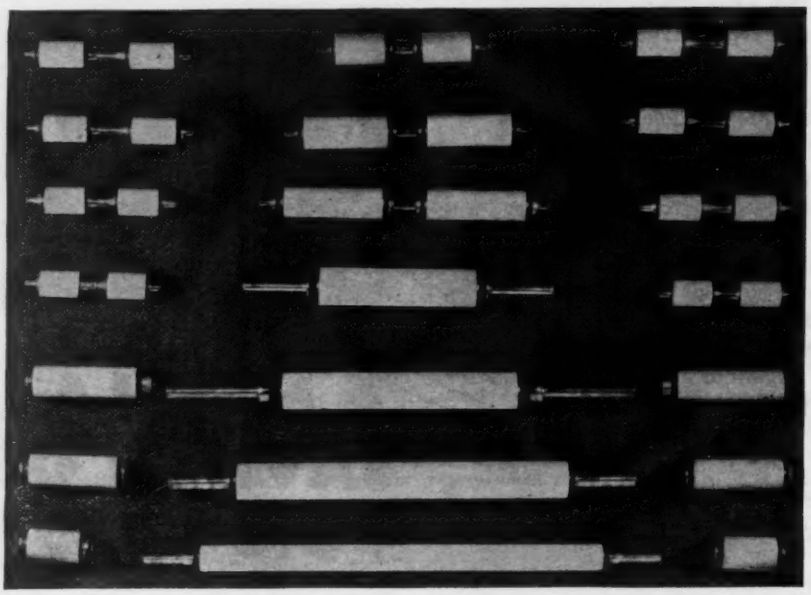

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in screen boxes; that the eveners are working so that the correct amount of pressure is on the stock going under the feed roll at all times, as this will prevent the beater jerking it through in lumps.

It would be much better of course if "CONTRIBUTOR No. 4838" had some system of opening, for it has been proven that cotton must be thoroughly opened and cleaned for best results to be obtained.

CONTRIBUTOR No. 4774.

Points on Carding.

EDITOR COTTON:

Carding is regarded by all mills as one of the most important processes in cotton yarn preparation. The card is the first machine that makes a sliver or roving like strand. This being true, the stock must have careful attention at this point. The card is not responsible for the work it produces but the man in charge of it is. The blame should not always be placed on the card; with proper attention it will generally do its work satisfactorily.

A card grinder should be watched closely to see that he does not neglect his work, as a careless grinder is the mills' worst enemy. If he rushes over his work he is likely to leave nuts and lock bolts loose, and if this is done around the flat settings it will cause the flats and cylinder to rub, which of course will dull them. Then if the flats are backed off and left that way during grinding they will receive no benefit from the grinding operation.

If the doffer, feed plate, stripper plate, licker-in and screen settings are neglected for several grindings, a neppy, cloudy sliver will be the result. However, if the flats are set too close to the cylinder a mealy like yarn will be obtained which will also be very weak, as a dull card will very likely injure the fibers. The flats and cylinder being dull, the fiber has a tendency to drag back and is delivered to the doffer in a lumpy form. The fibers will appear neppy and lumpy as they pass through each process.

There is no set time as to when cards should be ground. It is a known fact, though, that they should be ground before becoming dull. Since the quality of the yarn largely depends on the card, it should be kept sharp and well adjusted at all times.

The object of the card is the disentangling of the cotton fibers, or the separation of the bunches or tufts of fiber into individual fibers; the commencement of their parallelization; the removal of leaf and smaller impurities; and changing the formation of the cotton from a lap to a sliver.

Careful attention should be given to the grinding rolls; they should be kept well oiled and cleaned. The emery on the grinding rolls should not be used after they become worn and clogged with oil and lint. The stands that the drum grinder rests in should be kept well oiled so that they will not wear to the extent that the rolls will jump or quivver while in motion. After grinding, careful attention should be given to the card settings. If the clothing is tight and level, the flats should be set to a 9/1000 gauge and cleared with a 7/1000 gauge. Each stand, excepting the back stand should be set the same, it being set somewhat looser

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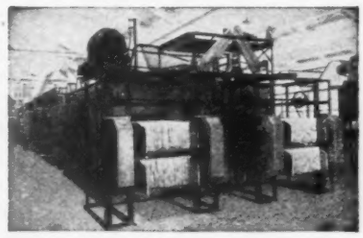

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MON. TUE. WED. THU. FRI. SAT.
DAY 74 149 223 297 371 405
NIGHT 81 162 243 342 405

. . . without knowing what each loom is doing? . . . without an accurate check-up on individual weaver production? . . . without means of making lagging looms produce *their* share? ¶ There's small chance — and less need — for a mill to operate under this handicap. Veeder-Root Counters have paid for themselves in as short a time as 3 months . . . but give them a year! In that year *and thereafter* you'll be competing on even terms. Why not write for a *free trial* installation — at once?

Veeder-Root INCORPORATED HARTFORD, CONN.

Builders of Pick Counters for 22 years . .

to allow thick places or lumps to spread more quickly. The doffer and licker-in set to a 7/1000 gauge will give good results.

Anyone in charge of the management of cards should strive to attain the following points: (1) the turning out of as large a production as possible, consistent with the quality of yarn required; (2) avoidance of waste; (3) keeping down the cost of power, supplies, etc.; (4) keeping machinery and floor in good condition and clean.

CONTRIBUTOR NO. 4798.

Criticism.

EDITOR COTTON:

Why is constructive criticism, like good advice, so little appreciated? Both are cheap. If our efforts are ridiculed we redouble our assiduities to attain success. Without the power of criticism as a driving force, we might cease trying. Even if the pride is injured, we may avoid the humiliation of failure or defeat by heeding the critic. Too often is just rebuke or criticism from kindly disposed persons either borne with impatience or flung back with sharp reproof. Many travel a thorny pathway through life because they do not profit by the criticism of older and wiser heads.

Resentment of intervention is a leash of human nature which retards our progress in the strife for success. When things go wrong, we too often resent a merited rebuke from our superiors.

There are those working under you whose success depends somewhat on your just criticism of their efforts and methods, but you, yourself, are working under the supervision of others who obtain results from those subordinate by their criticism of you. Your success depends a great deal upon your ability as a critic as well as your attitude under criticism. Stop and think it over.

When the man you work for is square with you, but takes you to task for something you do or do not do to his satisfaction, are you one to leave his office feeling as though you were the most abused individual in the world, and do you proceed to say to your subordinates, things you later wish unsaid when you have but little control of your mental emotions? Of course you have, but if you still do, you are on a job too big for you.

Fear and anger invoke wrath, but little is accomplished by the fear or anger administered through a tongue lashing. More is to be gained with less effort if we first regain our composure and retain our dignity which is of the essential qualifications of those in charge of others. By so doing, we avert trouble we might otherwise cause.

Few are there who invite criticism, yet it teaches us our shortcomings. We are more inclined to hold highest in our esteem those who praise our efforts and abilities most, which makes of us tools of profit in the hands of flatterers. The uncommunicative personality is often credited with great wisdom and shrewdness probably because those possessing it do not prevaricate by praising everyone nor make ene-

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mies by telling the truth, but hold their opinions unless it is advantageous to express them and thus invite the criticism by which they are big enough to profit. Seeking advice admits a lack of superior knowledge and is no crime; agreement of opinion raises the estimate of each party in the other, but little attention is placed in the constructive value of just criticism.

Try to be open to invite and profit by criticism for there are many more failures than successes in this world through a lack of ability to stand up under it.

CONTRIBUTOR NO. 4799.

Preparing Raw Stock for Dyeing.

EDITOR COTTON:

Where you have the vacuum dyeing machine packed right, the dye thoroughly dissolved, and the bath at a temperature of at least 200 degrees F. you can nearly always count on putting out a batch that is even.

Soda ash as used in dyeing sulphur colors on raw stock has two purposes, namely to help wet out and to keep the bath on the alkaline side. I have used soda ash for 10 years on a good many sulphur dyes, and have gotten good results, with the exception of a few times where the color combination would not work together satisfactorily, and I don't believe there is any kind of prepared soap that would even up a bath dyed with those colors.

But where you are using direct colors you sometimes find when using soda ash that the shade is too red. To get away from this just leave the soda ash out and boil the batch.

S. C. R. (GA.)

EDITOR COTTON:

This is in reply to the question of one of your contributors as to the best method of preparing raw stock for dyeing, particularly in dyeing sulphur colors in vacuum machines. We have found, taking everything into consideration—time, cost, condition of cotton after dyeing, etc.—that a two per cent boil-off with soda ash from 45 minutes to one hour is the simplest and best method as well as being very economical.

For sulphur colors, where the cotton is of a good grade and reasonably clean, the dye liquor can be added to the boil-off bath, that is, without draining the machine, and rinsing after the boil-off. The same method as outlined can be used for dyeing direct colors, but where the color is to be started at a low temperature, the quickest method is to drain the boil-off liquor and refill the machine with cold water, circulating and running until the required temperature is obtained.

As to many of the prepared soaps and oils, we have not found these essential, and some of them will cause trouble in the card room and elsewhere in the mill.

In dyeing vat colors, however, a good boil-off and penetrant should be used, which not only gives more uniform and level shades, but leaves the stock in better condition when it is ready to run through the mill.

CONTRIBUTOR NO. 4938.

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QUALITY PICKER STICKS
To Be Manufactured by
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The Pearl River Valley Lumber Company, Canton, Mississippi, announces the purchase of the picker stick business of the Pioneer Pole & Shaft Company, Memphis, Tennessee. The new owners assure the same quality and manufacture attained in the past and ask the continued patronage of the textile trade.

"PIONEER" picker sticks have long been famous for endurance qualities. The Pearl River Valley Lumber Company owns, and operates in, hardwood timber tracts sufficient for 20 years continuous production. HICKORY for picker stick manufacture is cut from their own timber. Users of "PIONEER" sticks are assured long-time, continuous supplies of uniform quality.

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CANTON, MISSISSIPPI

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Metallic Card Clothing
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for
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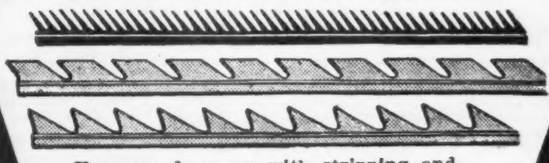
SILK CARDING



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The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

1. Cotton Picking, Carding and Spinning—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. Pepperell Equipment—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

3. Modern Practice in Textile Wet Finishing (Slack Loop System)—Practical discussions, various methods bleaching, covering batch, semi-continuous, fully continuous for cotton, rayons and mixtures. Request must be on mill letterhead. By Rodney Hunt Machine Co., Orange, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. The Bahnson Master Control—Bulletin No. 801, 5 pages. Illustrated. Automatic device designed to control humidifying equipment so as to maintain a constant relative humidity. By the Bahnson Company, Winston-Salem, N. C.

6. "Textile Brushes"—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

9. "Custom-Built" Motors—Complete set of bulletins covering various types of electric motors for textile master mechanics and executives. By Louis Allis Company, Milwaukee, Wis.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

12-A—Instruction Manual for Type K Bobbin Cleaner. Also **Instruction Manual for Utsman Bobbin Cleaner**—two separate booklets describing adjustments of machines outlined, and also describing effect of bobbin shapes upon the cleaning process. These booklets intended for users of machines outlined. Applicants should designate which booklet is desired. By the Terrell Machine Company, Charlotte, N. C.

12-B—Instruction Manual for the Termaco Roving Bobbin Cleaner—booklet in four sections on adjustment of machine; on how to use machine to best advantage in reducing waste and saving labor; parts catalog; description of new attachments which can be applied to earlier models of the machine. By the Terrell Machine Company, Charlotte, N. C.

13-A—Equipping Modern Textile Plants—Booklet, 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. **Also Dyed in the Truth**—Reprints of advertisements of special interest to textile dyers. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

15. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

17. Arcy—12 page booklet on getting most value from starch in warp sizing and cloth finishing. By Drake Corporation, Norfolk, Va.

18. Popular Industrial Chemistry—162-page handbook for dyers, chemists, finishers, purchasing agents. By Kali Manufacturing Company, 1404 No. Front St., Philadelphia, Pa.

19. Quaker City Chemical Co.—48-page booklet containing useful information, tables, formulae, on dyeing, bleaching and finishing all textiles. Issued by above company, 2786 North Broad Street, Philadelphia, Pa.

20. Bleaching, Dyeing, Finishing and Printing Textile Goods—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

22. Tragasol and Its Uses—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

24. Wyandotte in the Textile Mill—90-page booklet with information on bleaching, dyeing all textiles, including hosiery.—J. B. Ford Co., Wyandotte, Mich.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

27. The Seven Factors of Belting Economy—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 88 Ferry Street, New York City.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31—Canvas Baskets and Trucks. Doff boxes, trucks and for all textile uses. By Rockweave Mills, LaGrange, Ga.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness, and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

39. Trend of Sales of Silk, Rayon and Cotton in the Piece Goods Departments; twenty-four-page booklet; prepared by DuPont Rayon Company in conjunction with National Retail Dry Goods Association. Copy furnished without charge by either of above. DuPont Rayon Co., 2 Park Ave., New York, N. Y.

41. Budget Control—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits.—by Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on **Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.**)

42. Textiles and the Telephone Typewriter—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel. and Tel. Co., Long Lines Department, Atlanta, Ga.

43. Pornitz Vacuum Bleaching Apparatus—showing the many advantages of this system for bleaching, including the saving of time, saving in chemicals, saving in the transport of material from one apparatus to another, etc. H. H. Leonard, 475 Fifth Ave., New York, N. Y

44. Points of Interest in and Around Atlanta—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

45. Fidelity Universal Ribbers—a forty-eight page booklet showing the advantages and many styles of ribbed fabric and describing in detail and illustrating the latest developments in ribbers. Sent free on request by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, Pa.

46. Mundet's New Black Book—Including specifications for the installation of cork pipe covering under various conditions, telling how thick the insulation should be, listing the sundries that are needed with cork pipe covering—showing what to do when pipes are close together, explaining how to order, prices, etc. Copy sent free to anyone interested in cork pipe insulation. L. Mundet and Son, Inc., 461 Eighth Avenue, New York, N. Y.

47 The New Hartmann Spinning Process for Cotton Yarns—showing how with the Hartmann Ring Spinning Frame with combined drafting, it is possible to produce finished yarns in one operation direct from the untwisted sliver of the drawing frame. H. H. Leonard, 475 Fifth Ave., New York, N. Y.

49. Pornitz Hosiery Dyeing Machines—giving details of machine, its many advantages and showing typical installations. H. H. Leonard, 475 Fifth Ave., New York, N. Y.

50. The Effect of Belt Tensions on the Cost of Belting—a 12-page booklet, giving a non-technical explanation of belt tensions, the coefficient of friction of various kinds of belts, the effect of belt tension on belt costs, and the proper care of belting to assure long life and low costs. Sent free on request. Chas. A. Schieren Co., 30 Ferry St, New York, N Y.

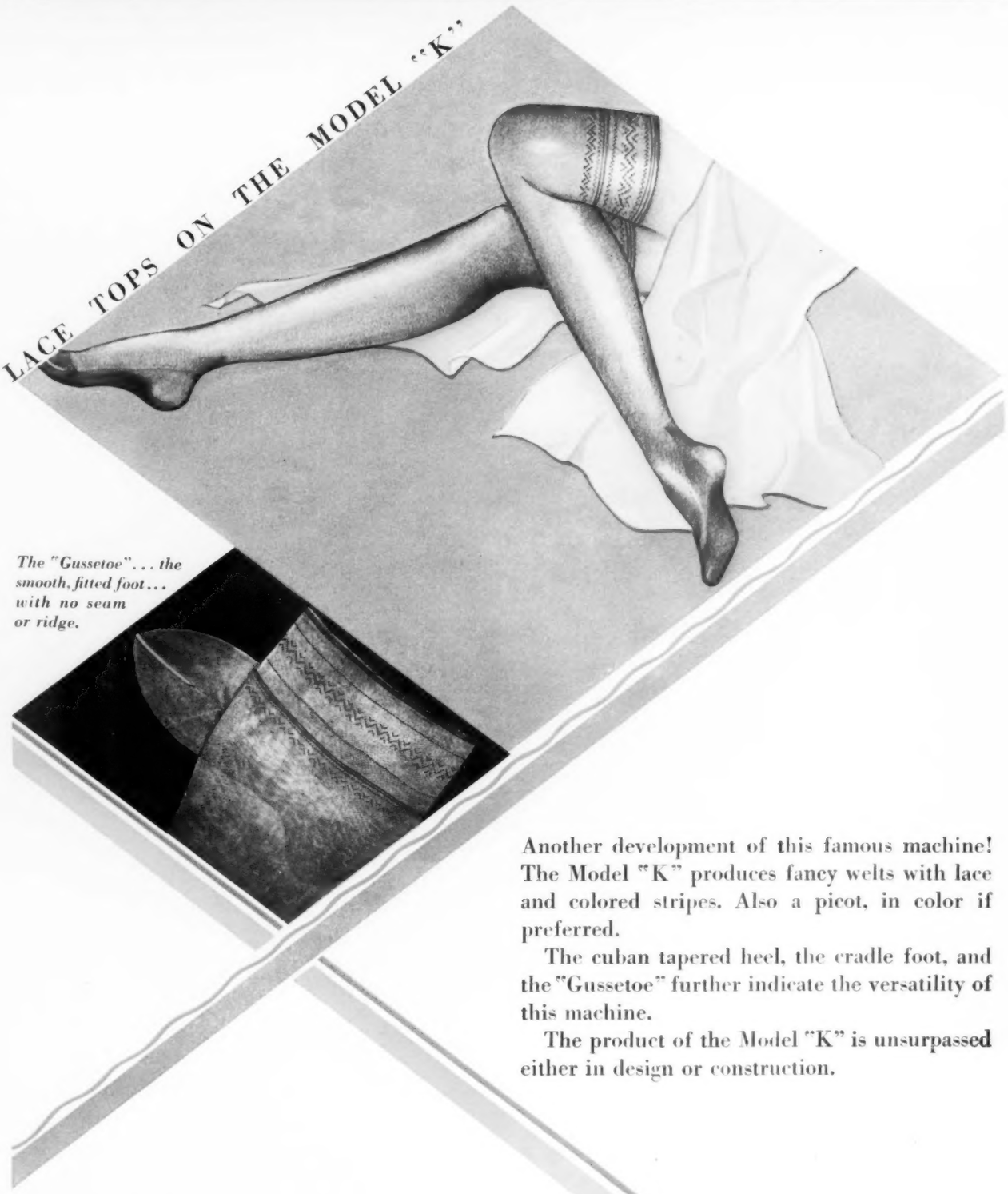
51. Pornitz Vacuum Steaming and Conditioning Machines—for fixing the twist in the yarn and restoring to the material the natural degree of moisture which has been lost during the spinning process H. H. Leonard, 475 Fifth Ave., New York, N. Y.

52. The Lincoln Twin Disc Floor Machine—showing the many advantages of clean, sanitary floors, the saving in time and labor through using floor cleaning machines and describing in detail the various models of Lincoln floor machines. Lincoln-Schlueter Floor Machinery Co., 213 W. Grand Ave., Chicago, Ill.

53. Anchor Fencing Service—a 24-page booklet showing various classes and types of chain link and iron fences and gates for industrial purposes. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

54. Shipper's Handy Helper—A forty-eight page booklet giving valuable information on shipping problems, including suggestions on packing, marking, numbering and invoicing shipments, and describing the principal items generally used in shipping departments. Southern Shippers Supply Co., 113 Courtland St., S.E. Atlanta, Ga.

Knitting Section



Another development of this famous machine! The Model "K" produces fancy welts with lace and colored stripes. Also a picot, in color if preferred.

The cuban tapered heel, the cradle foot, and the "Gussetoe" further indicate the versatility of this machine.

The product of the Model "K" is unsurpassed either in design or construction.

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Model "L", a full automatic individual needle wrap pattern machine, with CONCEALED WRAP. . . a new method of knitting wrap yarns continuously into the back of the fabric, while at the same time knitting any desired wrap pattern into the face of the fabric. The concealed wrap eliminates vertical floats, and gives the fabric a rib appearance and elasticity.

The model "L" uses a wrap pattern yarn for each needle. There are fifteen steps for regular patterns (with trick wheel control) and fifteen steps for shogg patterns.

Built in Sizes 2¼" to 4"
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Boy's and Men's golf hose
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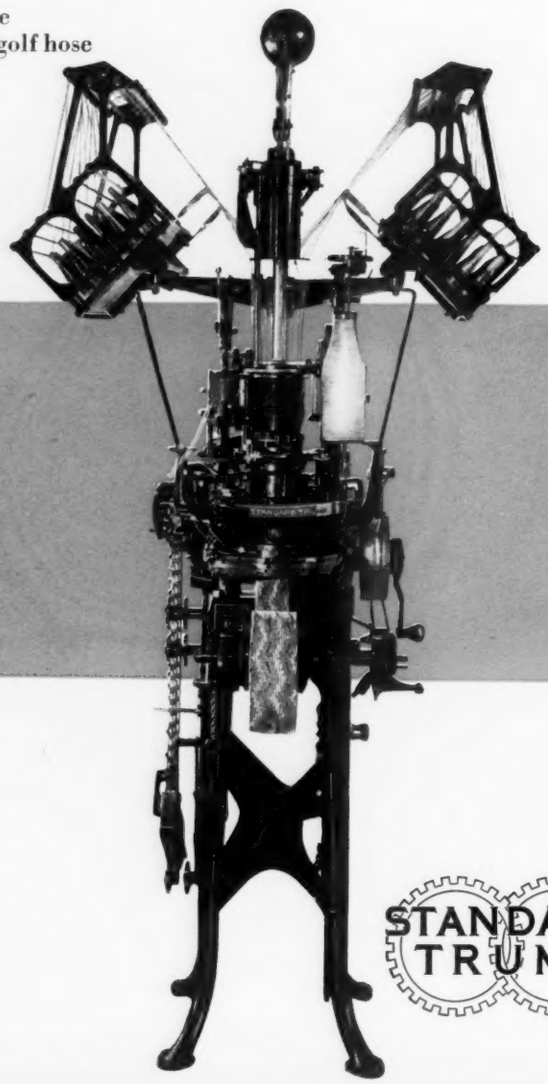

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NEW YORK, N. Y.

STANDARD TRUMP

Interesting Stock Trend Disclosures in Survey of Full-Fashioned Hosiery

THE EXHAUSTIVE and in many respects highly illuminating survey of stocks of women's silk full-fashioned in mills as of January 1st which was conducted by Dr. George W. Taylor of the industrial research department, Wharton School of Finance and Commerce, of the University of Pennsylvania, is a most valuable contribution to scientific studies of the causes for conditions which the experience of the last two years shows may arise unexpectedly unless manufacturers are more watchful of fluctuations in distribution and familiarize themselves with the reasons for such leaps and dips as have occurred in the industry in the last half of the decade ending with December, 1930.

The report of the survey contains much matter which of course was known to the trade at large. But without this there would remain no starting point from which to proceed to avert repetitions of the conditions complained—no precedent for recourse to the remedies which, while pointed out by Dr. Taylor, will suggest themselves to those who give careful study to the charts and text of the report.

While the survey reveals the situation as to stocks in mills as of January 1st, the statistician's report was not released for publication until May 13. During the time intervening, there were numbers of changes. That more than four months elapsed from the time exact figures may be supposed to have been available to reporting mills, before they could be applied to the purpose for which the work of compilation was intended, would seem to indicate manufacturers did not at the outset appreciate the enormity and importance of the work which Dr. Taylor had undertaken, and were dilatory in supplying the information called for in his questionnaire.

When first the task was discussed with manufacturers the necessity for a showing such as is made in the report was, apparently, realized, for before the figures appearing in the compilation were submitted to manufacturers there had been begun a general response to the proposal something was needed to halt the procession headed toward chaos, the increases in stocks during the first two months of 1931 being relatively insignificant, compared with the corresponding period of 1930, when the increases Dr. Taylor points out, resulted in stocks reaching their peak. By the end of February this year, he cites, stocks in mills had declined to around 3,750,000 dozens from 5,000,000 at the close of February last year.

That intervening happenings may have had much to do with the riveting of manufacturers' attention to a deplorable situation steadily becoming worse is not doubted, and the strike in Philadelphia and nearby sections beginning in February probably served also as a corrective. But with the aid of the several charts accompanying his report Dr. Taylor simplifies his findings and conclusions by associating trends in stocks with ratio of shipments and unfilled orders. Thus, he makes clear, increasing excess stocks may not indicate expansion in production, as there may be an increase in unfilled orders and a decrease in shipments during a given period.

He deduces from his analysis of mill reports as compiled for a composite showing that "it is not sufficient merely to know the trend of stocks for mill purposes in studying mill supply; that some attention must be paid to the causes that are resulting in particular trends." There is need, he points out, "for consideration of stocks which may exist in various warerooms, of which that at the mill is but one; that hosiery is in stock not only with the manufacturer, but with the wholesaler, the retailer, and even with the consumer. The increase of women's full-fashioned hosiery in stock at the mills may be due in no small measure to the decrease of stock in distributive channels, and may signify a changing relationship between the manufacturer and his outlets."

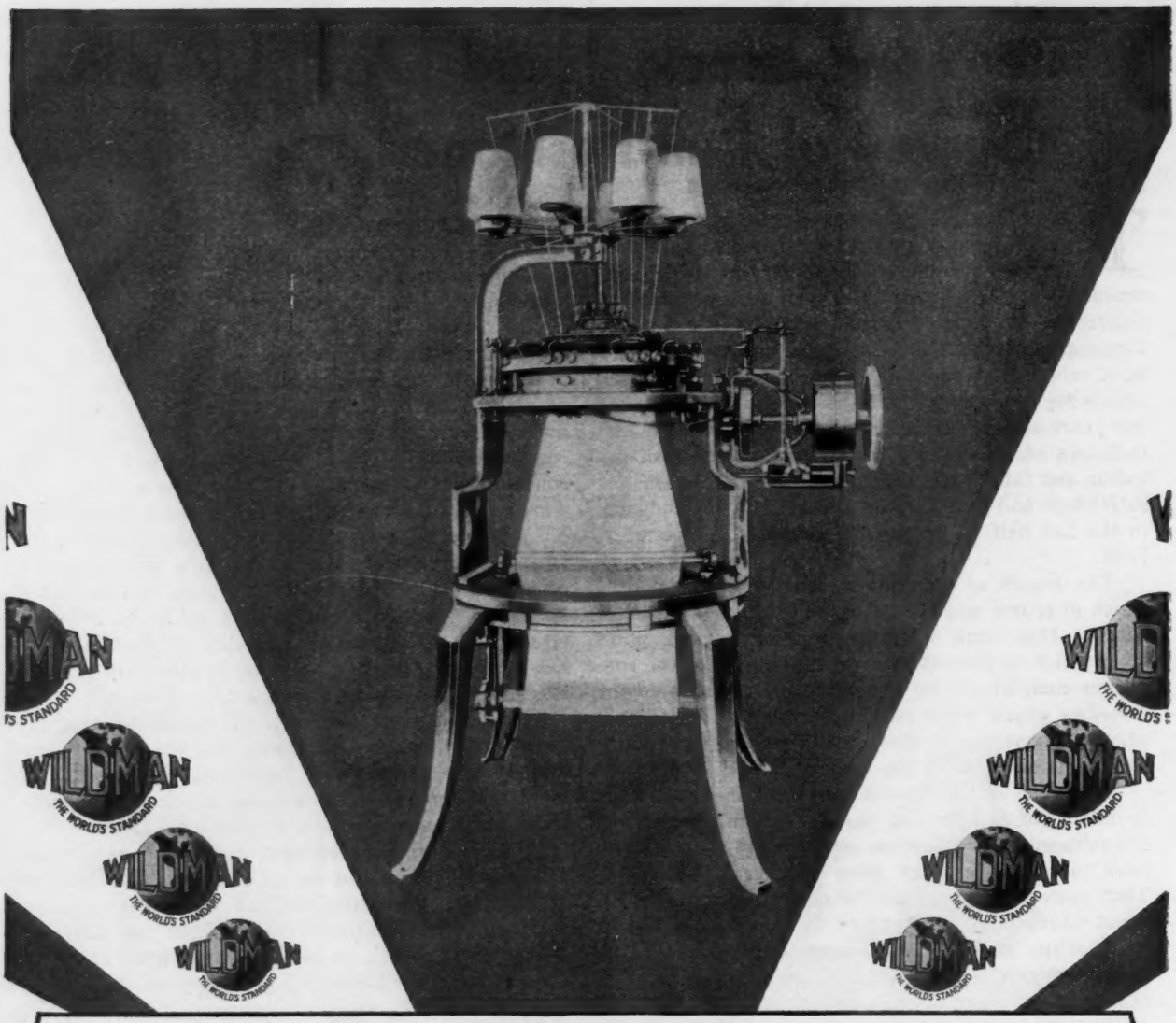
Chart 1 in the report of the survey shows that the years 1927, 1928, and 1929 were marked by very definite decreases in stock in December, with as definite increases throughout the summer seasons. The stock trend had been consistently upward until 1930.

Dealing with the relation of unfilled orders to stock, the report goes on, "at one time during 1925, unfilled orders were three and one-half times the stock on hand, while in 1930 they were, at times, less than one-fourth of the stock on hand. Throughout 1929, unfilled orders were between 50 and 75 per cent of stock, although in that year total shipments of full-fashioned hosiery were the largest of any year recorded." Thus illustrating that, for completing the picture as to stocks, shipments and unfilled orders must be figured jointly.

The increases in stock above the 3,500,000 level, beginning with 1929, caused the ratio of stock to shipments to increase. Stock was not being increased because of an increasing level of hosiery shipments. This, combined with a further decrease in the level of unfilled orders, resulted in the abnormal stock situation that prevailed throughout most of 1930.

The gradual decreases of stock that have occurred since February, 1930, have been caused by a combination of restricted production and a partial check to the decline of shipments. That production decreased in 1930 is evident from the fact that the yearly output was slightly over 25,000,000 dozen pairs as compared with over 27,000,000 dozen pairs that were produced in 1929. The review warns that greatly increased demand for hosiery is not yet definitely evident. Shipment trends have provided some measure of hosiery demand.

Orders booked increased steadily from 1925 to 1929. This made an increase of stock necessary, to meet the increased demand. Beginning with 1929, however, orders began to decrease as stock increased, in the face of the very large 1929 production.



For Rayon Fabric of finest gauge and perfect plating—the Wildman Body Machine.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

TABLE 1

Stock on Hand and Unfilled Orders at Manufacturing Establishments Classified by Gauge
(Percentage)

Gauge	Stock on Hand	Stock Reported as Obsolete or Irregular	Unfilled Orders	Ratio of Unfilled Orders to Stock
36 and under	2.8	6.5	*	*
39	15.4	18.0	3.6	5.7
42	56.9	46.9	80.6	35.0
45	19.9	23.6	11.0	13.6
48	4.5	4.5	4.8	26.0
51	.4	.5	*	*
54 and 57	.1	*	*	1.0
Total	100.0	100.0	100.0	
Total Dozen Pairs	3,046,382	368,697	751,428	24.7

* Less than one-half of one per cent.

TABLE 2

Stock on Hand at Manufacturing Establishments Classified by Gauge and Type of Material
(Percentage)

Type of Material	Total Dozen Pairs	Per Cent	Gauge						
			36 and under	39	42	45	48	51	54 and 57
Tram Silk	1,840,442	66.6	46.2	72.1	75.6	46.1	42.0	4.9	
Hard Twist Silk	665,961	24.1		6.0	17.4	51.3	52.9	35.5	62.4
Ingrain Silk	21,795	.8			*	1.5	3.6	59.6	37.6
Other Types	233,794	8.5	53.8	21.9	7.0	1.1	1.5		
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Dozen Pairs	2,761,992		42,944	413,269	1,598,546	568,928	123,991	12,896	1,418

* Less than one-half of one per cent.

TABLE 3

Stock on Hand at Manufacturing Establishments Classified by Gauge and Weight of Thread
(Percentage)

Type of Material	Total Dozen Pairs	Per Cent	Gauge						
			36 and under	39	42	45	48	51	54 and 57
Chiffon	1,553,655	55.0		23.5	51.9	80.9	97.8	99.3	100.0
Semi-Service	866,783	30.7	46.2	35.8	36.2	17.5	2.2	.7	
Service Weight	182,286	6.4	3.8	19.2	5.6	1.0			
Other Types	222,511	7.9	50.0	21.5	6.3	.6			
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Dozen Pairs	2,825,235		42,944	447,107	1,608,513	577,630	134,728	12,895	1,418

Too Early for More Production.

Production cannot yet be increased if recovery is to develop rapidly, says the reviewer. Orders booked must show a more definite increase and stocks must get below the 3,500,000 dozen pair level, before production of goods can be increased. This may be difficult in view of the present large capacity of the industry.

Rapid stock increases during 1926 and 1927, the report of the survey points out, were a natural consequence, not only of general increasing business, but also of a shift in the burden of stock carrying to the manufacturer.

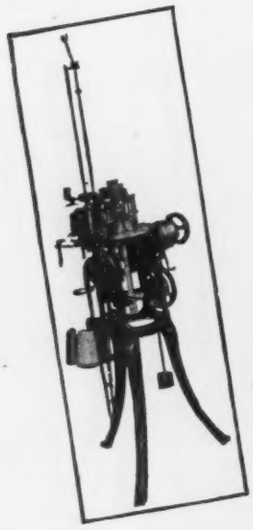
Granting that hand-to-mouth buying will persist, the manufacturer has the choice of carrying large stocks or in operating to orders. The second alternative implies the existence of more equipment than is required to operate in the dull seasons, and the quick production of orders by increasing the working equipment. This process involves not only seasonal operation but the need for a flexible production schedule. Its working out requires careful analyses and presents a problem in that employees are apt to be subject to irregularity of operation. However, the alternative lies between idle machinery during dull seasons and equipment that remains idle while accumulated stock is being cleared.

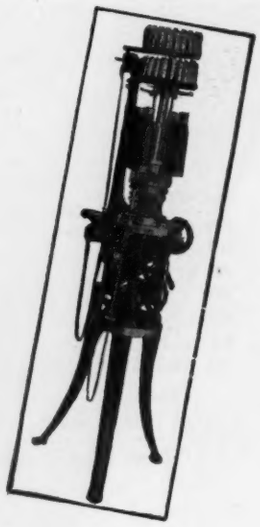
56.9 Per Cent of Stock is 42-Gauge.

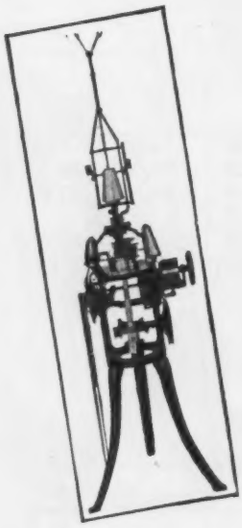
From Department of Commerce data, the analyst has estimated that on January 1, 1931, there was, at hosiery mills, a stock of women's full-fashioned hosiery that totaled 4,120,127 dozen pairs. From data now available, it is impossible to estimate how much of the total was represented by 45-gauge hosiery, by semi-service weight, or by hard twist, etc.

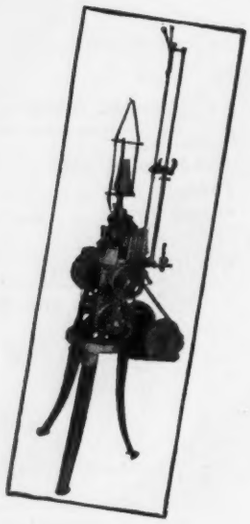
ALL TRUE-RIB

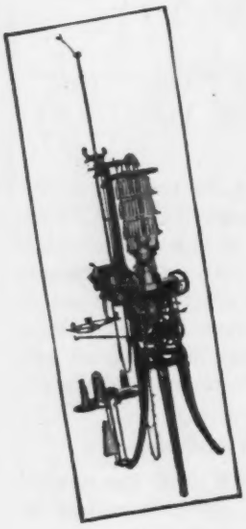
(Patented or patent pending)

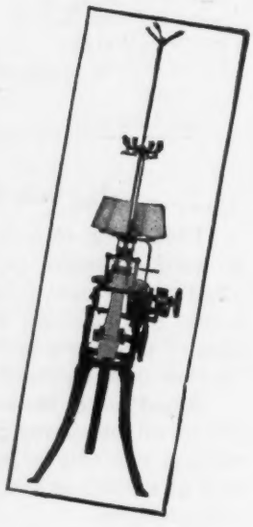


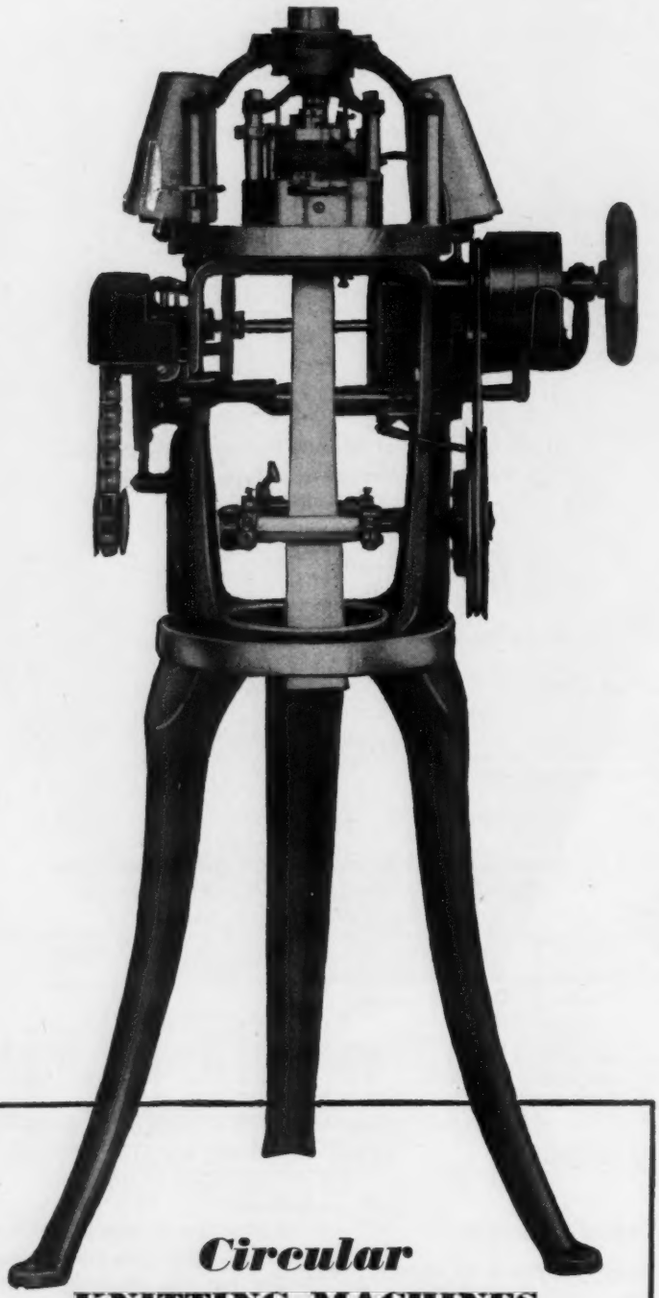












Circular

KNITTING MACHINES
BRAIDING MACHINES
CREASING MACHINES

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
PHILADELPHIA, PA.

THE FIDELITY UNIVERSAL RIBBER

The review thus far has considered total stock in mills in only broad generalization, whereas a complete understanding of the facts of hosiery stock must be based upon detailed information, upon a record of the stock of particular types of hosiery, and the demand for each type. Obviously a complete record of all details of construction of hosiery in stock represents an almost endless task. Certain specifications, however, are usually deemed to be of particular importance. The Industrial Research Department of the University of Pennsylvania, in co-operation with the National Association of Hosiery and Underwear Manufacturers, secured, from a representative group of mills, data regarding the extent of hosiery stock on January 1, 1931, according to these specifications.

The record that follows (Table 1) is based upon detailed information representing an almost 75 per cent sample:

Tram Almost Three Times Hard Twist Stock.

In considering the prevalence of particular types of material of hosiery in stock, the report suggests, it may be well to continue the analysis further by noting the composition by type of material of the stock of hosiery of each gauge. This is the function of Table 2.

55 Per Cent of Stocks is Chiffon.

Just as it was of interest to note the prevalence of type of material in stock, so it is important to detail the nature of stock by the weight of the thread used in the stockings. In this next classification, chiffon hosiery is that knit of silk of from two to five threads; six- to eight-thread hosiery has been termed semi-service; while stockings knit of nine thread or heavier silk have been classified as service-weight hosiery. It has been possible to classify 2,827,268 dozen pairs or almost 66 per cent of the estimated total stock according to thread.

Detailed Stock Data Essential.

Concluding a summary of his analyses, Dr. Taylor says:

"The understanding of the stock trend history should offer a guide for the present. From 1927 to 1929 stock increases seemed to bring the stock level to about 3,500,000 dozen pairs, which should not be exceeded by this industry unless shipments and orders increase to a higher level. If orders continue a level lower than the peak of 1929, then stock should be kept even lower than the 3,500,000 level.

"While such matters as stock trends are essential for the determination of company policy, detailed data of stock are indispensable in particular problems of disposition of goods. Use of the knowledge of stock trends contemplates rapidly disseminated information."

Letters from an Old Knitter to His Son

DEAR DAD:

For the past several weeks I have been giving all of my time and thought to ways and means of reducing costs, and to my surprise my investigation has revealed more things that could be done to increase the cost, which would improve the quality of our products, than I have found would reduce the cost.

With the market conditions as they are today, I can't see how I can make honest merchandise and compete with some of the skimped products which the buyers are holding up as competitive lines and demanding that we meet the price. This condition has taken all of the pleasure out of my work and the thrill that comes from a job well done. What do you think will be the final outcome? Will we continue to manufacture to a price or will we make quality goods and command a price?

With kindest regards to all the boys and with love to the family, I am

YOUR DEVOTED SON.

DEAR SON:

The question you asked in your recent letter with reference to maintaining quality is one that is giving all of us much concern. However, I am a great believer in Lincoln's philosophy, "You can't fool all the people all the time." The general public is more intelligent than many of the merchants are giving them credit for being, and they are getting fed up on bargain sales which have created such a scarcity of seconds among the manufacturers. I believe the average consumer is beginning to realize more and more that you get only what you pay for, and that there is still left in the country a great army of people who want the best and who are willing to pay for it, and who are not interested in having their toes tramped on around a bargain counter. I believe the better class of manufacturers and the better class of merchants are finally going to get together to serve the better class of trade a better product at a fair margin of profit, and I would much prefer to be in this class when that time comes; and the best way I know of being there is to begin right now to build character into a product.

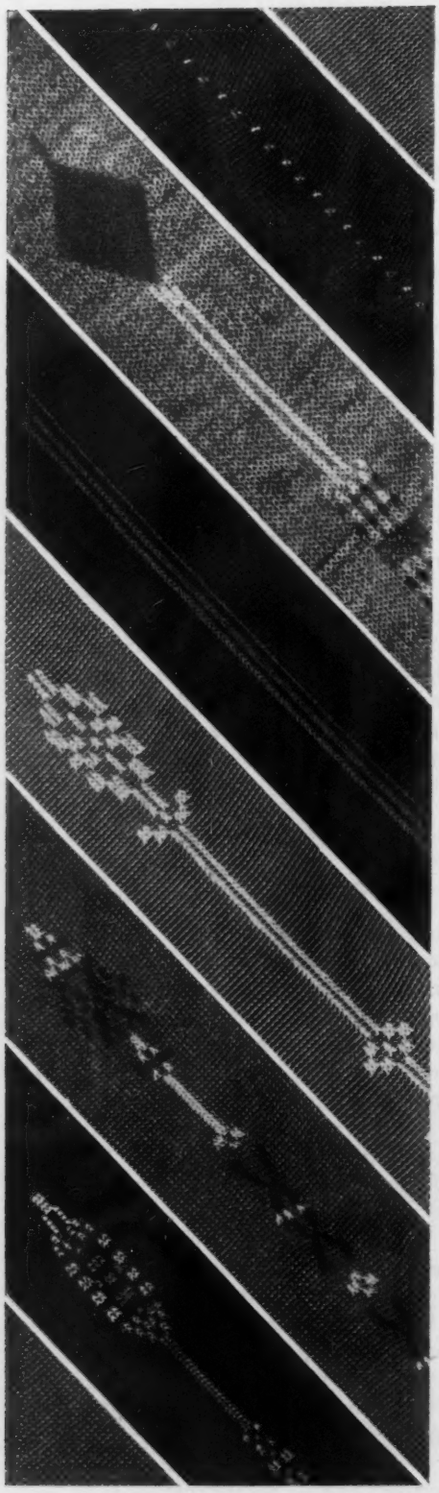
What we need most is to get back to fundamental manufacturing practices and quit wasting our time on worthless fads which the average consumer would never see unless they were brought to their attention. We manufacturers will have to admit that we are not running our mills any more, but are being dictated to by hosiery buyers, who in some cases have learned in the past few months to use the terms "gauge," "full needle bar," "high twist," "dull finish," etc.

Since many of these buyers are being paid on a percentage basis of the profits that their department shows, I believe the mills should put their sales agents on a commission basis on the manufacturing profits and let the two starve each other out while the mills close up for a summer vacation.

We are going to continue to make hosiery and we will work out these problems eventually so we can only take courage and keep on plugging.

With love,

DAD.



BANNER WRAP STRIPE

For practical, every day production

SINCE the Philadelphia Show, where all types of wrap stripe equipment were shown, substantial orders have been received from mills with Banner Wrap Stripe experience for additional Banner Wrap Stripe machines. Orders from such mills are unbiased opinions of Banner's superior merits.

THE Banner Wrap Stripe machine has demonstrated through more than three years successful operation that it has no equal for knitting plated body fabric together with the most practical range of patterns. It is the only machine which has proved its claim to knit any yarn or plated combination.

The machine is equipped to change colors two or three times in a vertical design, or to change colors in *every* vertical design. It knits a high splice and double sole and has an eight plunger fashion wheel to save time in sizing. The Banner Wrap Stripe is a well built machine, smooth running and easy of operation and adjustment. Its patterns can be changed in 50% less time than with any other machine of its type. That's why mills that know what the Banner Machines will do continue to add to their Banner Wrap Stripe equipment.

BANNER

AUTOMATIC HOSIERY MACHINES

HEMPHILL COMPANY

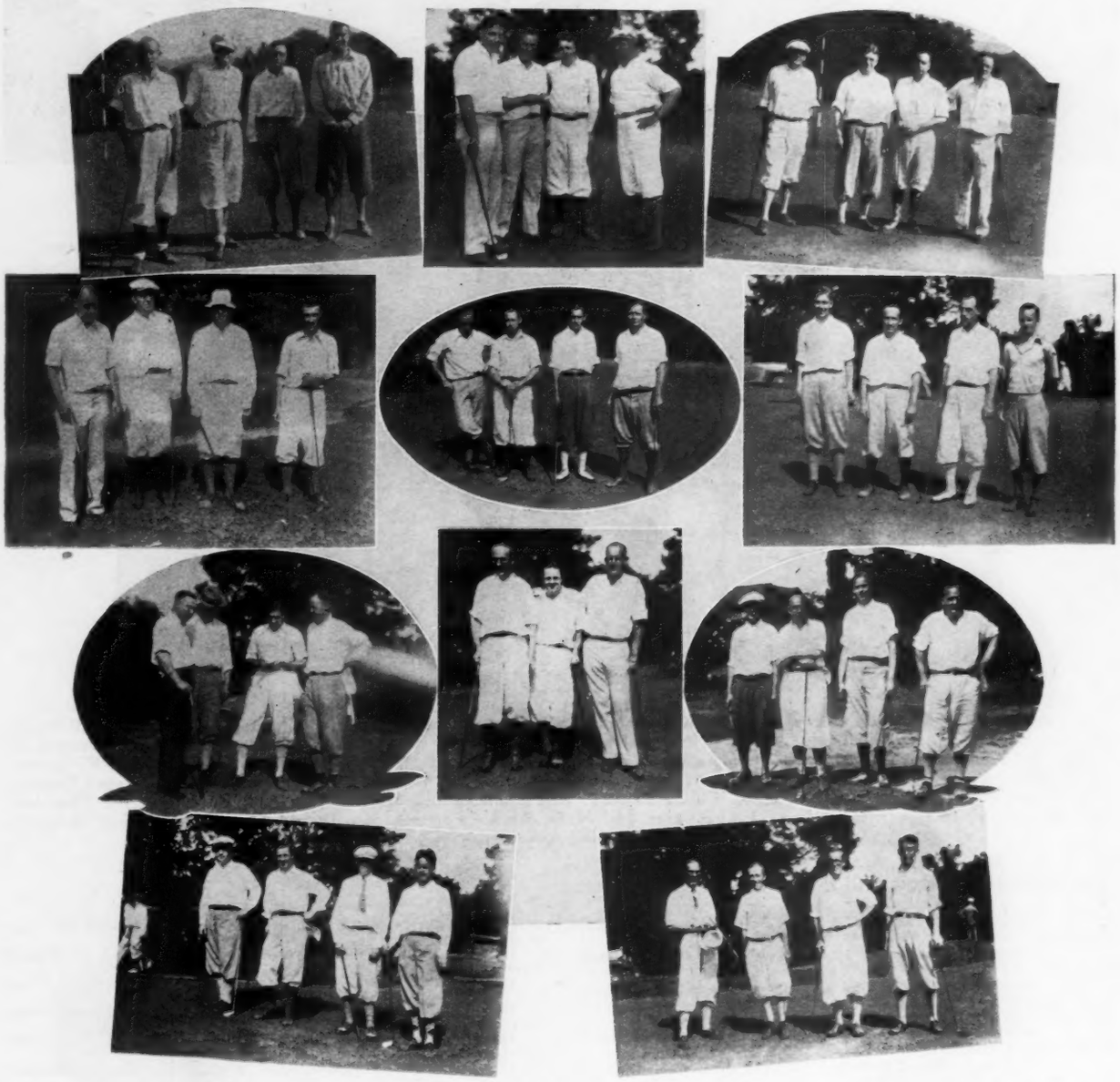
PAWTUCKET, R. I.
General sales office and machine exhibit:
93 Worth Street, New York, N. Y.

BRANCH OFFICES:
PHILADELPHIA 215 So. Broad St.
HIGH POINT Commercial Bank Bldg.
CHATTANOOGA James Bldg.

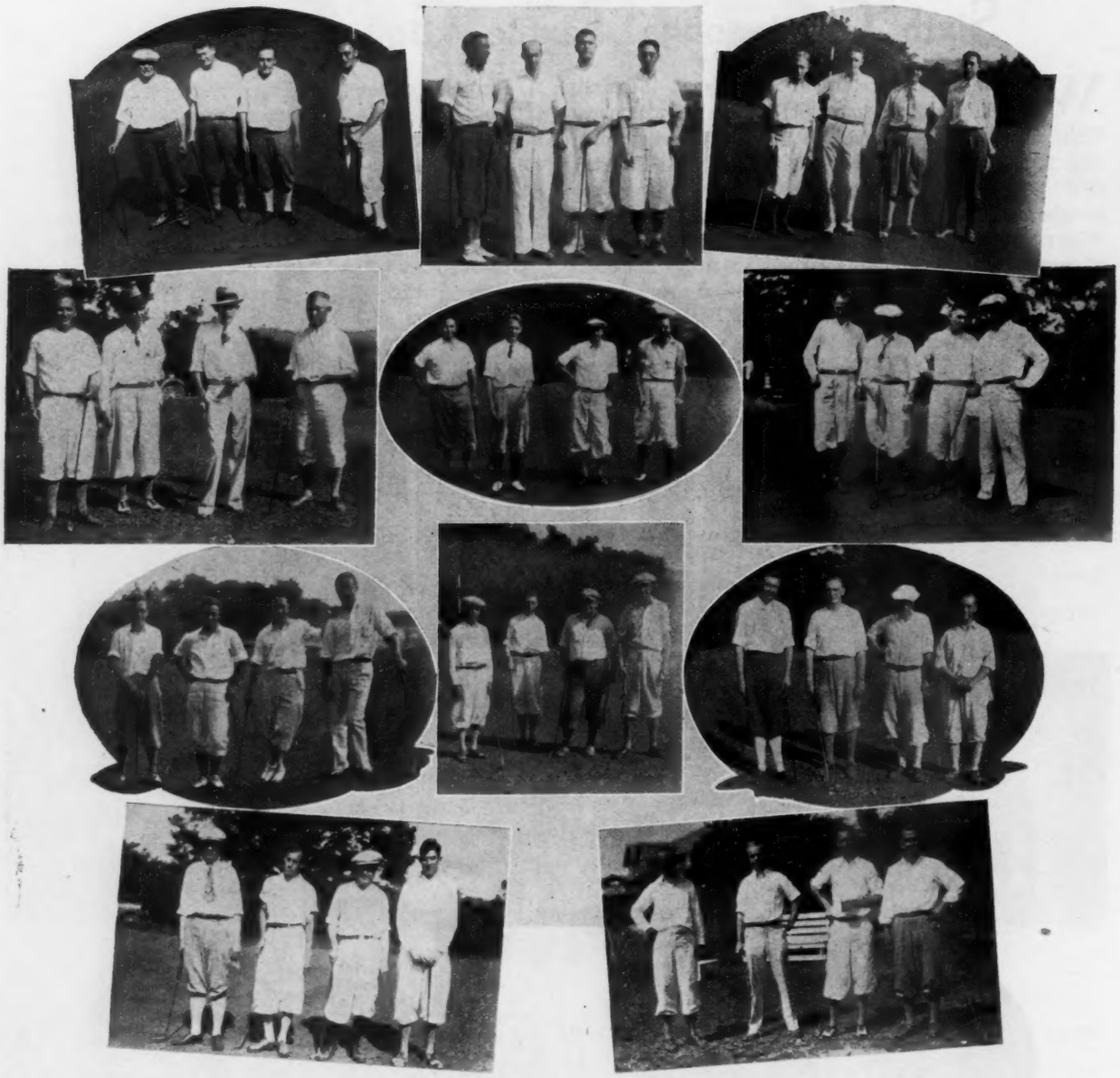
Sixth Chattanooga Textile Golf Tournament

WITH an attendance better than usual, the sixth annual golf tournament of the Chattanooga Yarn Association was held on Thursday and Friday, May 21 and 22, at the Chattanooga Golf and Country Club in Chattanooga. Among those present were the members of the association, including yarn and machinery representatives, as well as a welcome number of invited guests, including largely knitting mill executives and a few others. A 36-hole medal play tournament was the feature of the occasion, although other forms of entertainment were happily enjoyed.

Eighteen of the 36 holes were played on Thursday afternoon, following a luncheon. Thursday night there was suitable and enjoyable entertainment. Luncheon on Friday was at the club, and the remaining 18 holes of the tournament were played in the afternoon, and the concluding feature was the presentation of prizes and a banquet Friday night. John Fowler, of Cartersville, won the association cup, with low net score, with Harry Robinson second. The participating foursomes are shown in the snapshots herewith, and the prizes, winners and donors are listed on next page.



Top row, left to right: Charlie Hall, Guy King, William Murphy, Scott Probasco, Allen Diefendorf, Stan Hart, Garrett Johnson, R. C. Henderson, Tom McKinney, Clyde Wilkins, Bob Davis, Ed Dale. Second row, left to right: E. E. Pickard, Talley Johnson, H. E. Bishop, A. B. Brassell, Bob Miller, Harry Robinson, Waden Shedden, Hugh Griffith, Jim Huff, Jr., Ches Woodall, Jim Hartford, George Rounds. Third row, left to right: Bill McAllister, W. A. Enloe, Burton Frierson, George Smith, Dave Blevins, George Porges, George West, Henry Bryan, Walter Toy, Howard Cannon, Guy Henley. Fourth row, left to right: H. S. McInnes, Richard Wagner, William Magill, H. W. Rose, Walter Temple, John Kain, R. C. Thatcher, Claude Joiner.



Top row, left to right: Gus Ganster, Bob Howerton, Adolph Scholler, William Nebel, Neil Thomas, Ed McMillin, Bill Purse, Howard Cappel, Jim Smith, R. H. Griffith, J. P. Voorhees, N. W. Walker. Second row, left to right: R. D. McDonald, G. White, W. C. Thompson, John Fowler, Walter Wellman, W. C. White, E. K. Mann, Don Hurlbut, Carl Cline, A. F. Garrou, R. H. Bothwell, Harry Lineberger. Third row, left to right: Bob Shapard, Jr., Russ Shelton, Jap Rickman, Frank Dudley, Bob Fisher, Ernest Jones, Ernest Guffey, Wilbur Lawson, Red Jamison, Bill McAllester, W. J. Rooke, Alfred Thatcher, Fourth row, left to right: Jim Roberts, Frank Cater, Hal Hyde, Archie Fortune, Sam Diggle, Sims Read, Schultz McCarty, Neil Ashe.

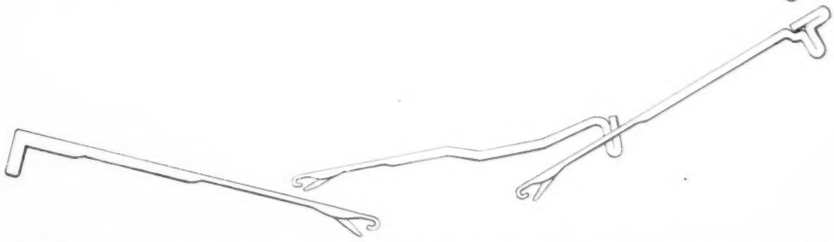
The winners, prizes, and donors were as follows:

1. John Fowler, Cartersville Mills, Association cup, and six silver goblets, given by American Glanzstoff Corp.
2. Harry Robinson, Atlas Paper Box Co., six silver sherbets, awarded by Dixie Mercerizing Co.
3. George Smith, Miller-Smith Hosiery Mills, registered irons, presented by Ruby Cotton Mills, Priscilla Mills, Ranlo Mfg. Co., and Southern Yarn Co.
4. Henry Lineberger, Aberfoyle Mfg. Co., ash tray, given by Philadelphia Metal Drying Form Co.
5. John Kain, Signal Knitting Mills, six silver ice tea glasses, given by Oscar Heinemann Corp.
6. Hal Hyde, Atlanta Hosiery Mills, clock and desk set, awarded by Scott & Williams, Inc.
7. William Nebel, Nebel Knitting Co., silver compotes, given by Aberfoyle Mfg. Co.
8. Clyde Wilkins, Champion Knitting Mills, electric clock, given by Standard-Coosa-Thatcher Co.
9. Guy Henley, Nick-a-Jack Hosiery Mills, silver platter, presented by Adamson Bros.
10. Talley Johnson, Davenport Hosiery Mills, silver tea service, by Duplan Silk Corp.
11. R. D. McDonald, Ingram Mfg Co., poker set, by Nyanza Mills.
12. M. W. Walker, Harriman Hosiery Mills, leather golf bag, by Torrington Co.
13. Bob Davis, W. B. Davis & Son, silver goblets, by Textile World.
14. Scott Probasco, Chattanooga, fountain pen, by Smith Drum Co.
15. William Murphy, Signal Knitting Mills, registered irons, by Paramount Textile Machine Co.
16. Bob Shapard, Jr., Spalding Knitting Mills, matched woods, given by Kaumagraph Co.
17. Don Huribut, Chattanooga, cocktail set, given by Hemphill Co.
18. Ed McMillin, Richmond Hosiery Mills, electric clock, given by Fidelity Machine Co.
19. Neil Ashe, Ashe Hosiery Mills, matched woods, given by Tubize-Chatillon Corp.
20. George West, Jr., Dixie Mercerizing Co., two dozen golf balls, given by Scholler Bros.
21. Stan Hart, American Glanzstoff Corp., leather kit bag, given by COTTON.
22. Bob Fisher, Athens Hosiery Mills; 23, Jap Ryckman, Standard-Coosa-Thatcher Co.; 24, Walter Wellman, Huntsville, Ala.; 25, Ted Jamison, New York City; and 26, R. H. Griffith, C. D. Gott Co.—each a fountain pen, donated by Smith Drum Co.

The Old Knitter Talks

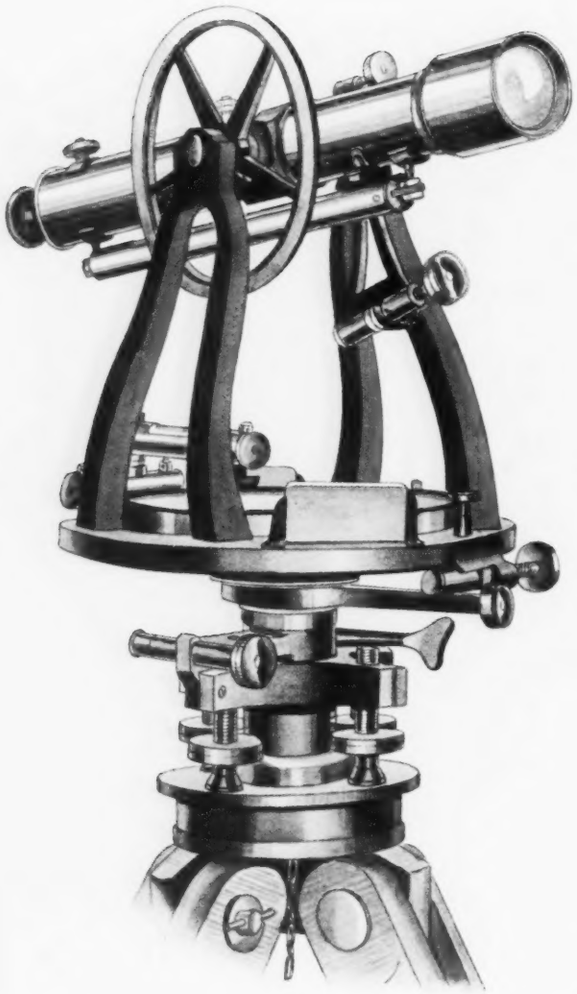
"Why always Torringtons? Because, my boy, Torrington Needles are *perfectly made.* Every one is polished to just the right degree, and that means no rough spots.

"It's the rough spots that put holes in your knitting . . . and holes in your profits, too. And you can keep them out of both by using these smooth, machine-made Torrington Needles."



The red box with the green label.

TORRINGTON *Latch* NEEDLES



Only a Machine can run a perfect "LINE!"

PERFECT control . . . that undeviating *sureness* of the surveyor's transit . . . is necessary for exactness in computing distance and angles.

Torrington Full Fashioned needles represent this same strict accuracy, to knitters. For Torrington needles are machine-made . . . on delicate, sure machines . . . that turn out one perfect needle after the other, exactly alike in every minute detail.

The red box with the green label. Packed 1000 to the box. Each box contains 10 packets of 100 needles wrapped in glazed paper.

TORRINGTON *Full Fashioned* NEEDLES

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

BRANCHES:

THE TORRINGTON COMPANY, 1640 FAIRMOUNT AVE., PHILADELPHIA
THE TORRINGTON CO., INC., 140-144 W. 22ND STREET, NEW YORK, N. Y.
LOS FABRICANTES UNIDOS 964 CALLE BELGRANO, BUENOS AIRES

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KNITTING KINKS

PRACTICAL DISCUSSIONS BY COTTON'S READERS ON VARIOUS KNITTING SUBJECTS

Some Questions on H H Machines

Readers able to discuss these several inquiries are urged to do so.

EDITOR COTTON:

I am running half-hose made of 150 denier rayon plaited with 150 denier Celanese on H. H. machines, 3½-inch, 220-needle, using 48-gauge needles. I am having quite a little trouble in two respects. One is holes developing at the gore corner, which appears to be mostly due to the yarn getting cut at this place, where the rayon and Celanese are plaited over one another. On some machines we run 150 denier rayon with 120 denier Celanese.

The other trouble is holes in the welt.

I should appreciate any suggestions your readers may offer as to how we may eliminate these difficulties under these conditions. Then I would be glad to have other men's figures and experience on the following points:

What is a good average needle breakage to figure per machine on H H machines running on half-hose as described? What is a good average breakage to figure on hooks and cast-offs.

What is a good average of menders on such work? What is a good average of waste on such work?

These machines operate daytime only.

CONTRIBUTOR No. 5020.

Overcoming Double Sole Plaiting Trouble

Can you think of any further suggestions for eliminating this trouble?

EDITOR COTTON:

I hope that this is going to prove of a help to "CONTRIBUTOR No. 4895," who recently stated that he is having trouble with double sole plaiting. He said they were using 125 denier rayon in their body yarn and 90s/1 mercerized in the double sole, and that they were having trouble on their 300-needle, Model K machines getting good plaiting.

The writer appreciates and understands the difficulty of our inquirer's problem. I agree with him, it certainly is a bother at times. However, in plaiting on this type machines there are standard rules, known to most knitters, which are followed to overcome this trouble. Not knowing whether the inquirer is familiar with them all, I will state my experience, along with one or two kinks I have found practical.

Most plaiting trouble is caused on the going-in side of the sole, that is when the plaiting finger drops in to take the yarn for plaiting on the needles. Very little trouble, if any, is encountered on the coming-out side. This is due of course to the action of the plaiting finger in relation to the welt presser, as the plaiting yarn is revolving underneath the transfer dial.

The first essential is the relation the plaiting and body yarns have to the needles at the feeding point. These two yarns should be placed at least ⅛-inch apart as they leave the front face of the throat plate, feeding to the needles. This separation is controlled by the position of the two fingers. The plaiting finger should feed the plaiting yarn to the left corner of the throat plate and the body yarn ⅛-inch to the right, as shown by Fig. 1. This is the standard rule I have always used for the yarn separation of these two yarns. The more separation you have of these two yarns, the less chance there is for mis-plaiting.

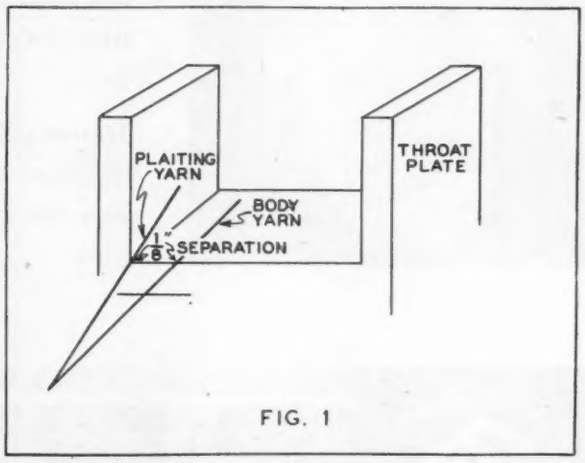
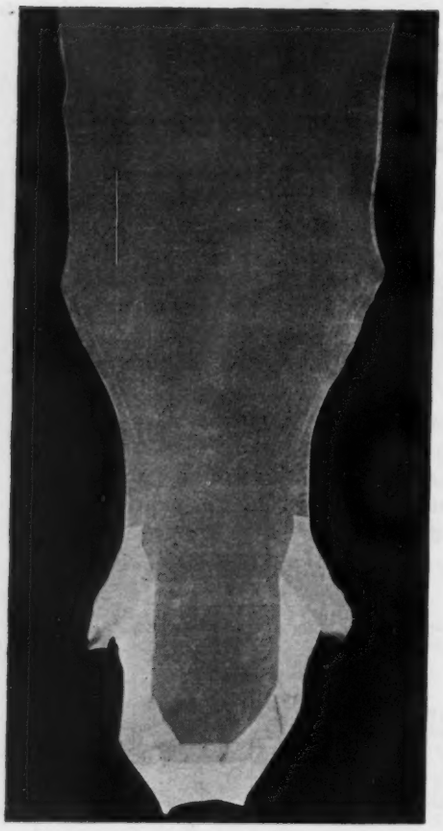


FIG. 1

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

REINER 3-T
KNITS
PLAIN FULL-FASHIONED
TOP-TO-TOE
FISH NET TOP-TO-TOE



and when equipped with the diamond gusset toe, can also be used

AS LEGGER OR FOOTER

to balance production.

•

BEFORE buying any new equipment see four machines in one in the Reiner 3-T.

Demonstrations at Weehawken; or arranged at mills near you.

ROBERT
REINER
INCORPORATED
WEEHAWKEN, N. J. Tel. Union 7-0502
25 MINUTES FROM TIMES SQUARE

EINSIEDEL-REINER
♦
FULL FASHIONED HOSIERY MACHINES

It has been my experience that there are certain machines that give more of this type of trouble than others, even though the machines are set up in the same way. It is with these troublesome machines that I have gone beyond the standard for a solution.

This separation of the yarn I have spoken of is obtained of course by the position and length of the body yarn finger. In five finger knitters, this finger is the second from the right, facing the machine. This finger should be as long as possible, care being taken that the front end of it does not hit the tops of the cylinder needles as it goes in and out of action.

I have found that slotting the left corner of the throat plate slightly has enabled me to get the desired amount of separation and eliminate a large percentage of my trouble. One thing must be taken into consideration, though. If too much is filed out of this corner, the plaiting yarn will miss the hooks of the cyl-

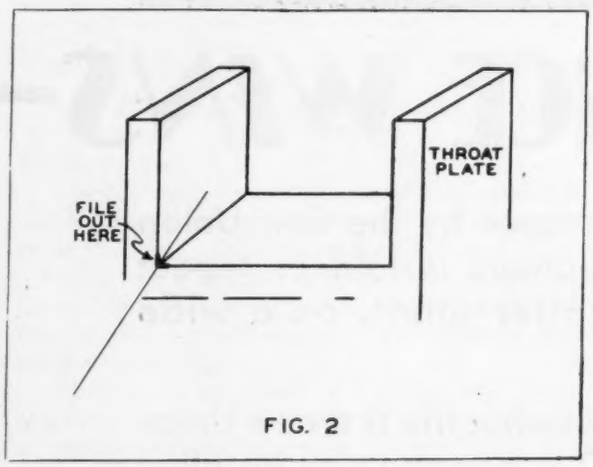


FIG. 2

inder needles. The proper way to do this is to first take the temper out of the throat plate, then use a four or six-inch three-cornered file. Filing this corner at an angle, as shown by the line in Fig. 2, and then re-tempering is the procedure that should be followed.

By filing out this corner, the plaiting yarn which naturally feeds to the corner of the plate will pull back to the filed portion and make the separation at the feeding point of the two yarns broader.

Too much attention cannot be called to the importance of having the proper tension on these two yarns. The general rule is to apply tension to the body yarn, which in this instance is 125 denier rayon, and let the 90s/1 mercerized flow into the needles without tension as freely as possible. The more tension that is applied to the rayon, the less mis-plaiting there will be. One can go to the extremes in applying this tension, however, so that it will cause pulling out from the needles and unnecessary cut-outs. The thread tension control should be as near to the fingers as possible—setting it just above the fingers on the yarn guide is a good place.

It is very important for the 90s/1 to flow into the needles as freely as possible. To obtain this result, the cone which the yarn is wound on should be as small as possible. With the yarn on the cone, the bottom diameter should never be over five inches, as it is not possible to have the thread pull off easily if it is larger. The thread guide should be just above the cone in the dead center line of the cone, so that an even pull will be the result as the yarn is feeding from the cone to the needles. This is shown by Fig. 3. A wooden block should be set on the bobbin stand so that there will be no chance of the cone sliding to one side, which would throw the top off center in relation to the guide.

I have even gone to the extreme of taking the splicing bobbin stand off the machine and setting the splicing cone of 90s/1 on the floor in a position that

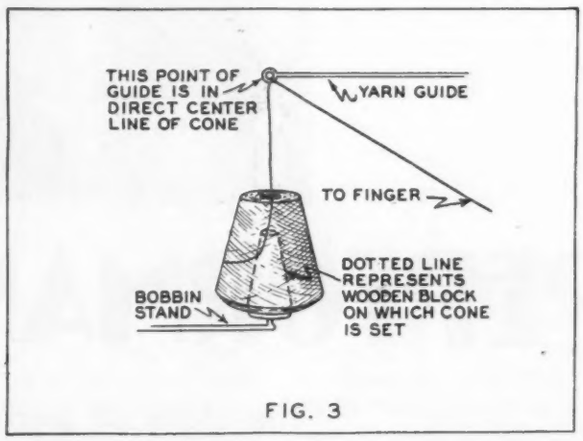

THIS POINT OF GUIDE IS IN DIRECT CENTER LINE OF CONE
YARN GUIDE
TO FINGER
DOTTED LINE REPRESENTS WOODEN BLOCK ON WHICH CONE IS SET
BOBBIN STAND

FIG. 3

had been centered by a chalk mark and represented the center line of the cone in relation to the guide. This was done to cause a freer delivery from the cone, and I can say it helped.

The welt presser should not be set in any more than necessary to prevent over-throwing of the splicing thread as it is revolving underneath the transfer dial. The reason for this is that when the splicing finger drops in to feed the yarn to the short butt needles in the going-in side, this thread rubs against the presser as shown by Fig. 4 until it gets far enough around to where it presses off until it makes the next revolution. The rubbing on the presser causes undue

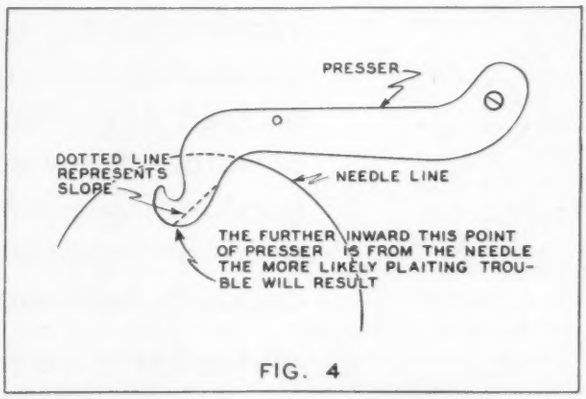

PRESSER
DOTTED LINE REPRESENTS SLOPE
NEEDLE LINE
THE FURTHER INWARD THIS POINT OF PRESSER IS FROM THE NEEDLE THE MORE LIKELY PLAITING TROUBLE WILL RESULT

FIG. 4

pull on the splicing yarn which acts the same as a tension on the splicing yarn. By not having it set inward any further than necessary, less pull and consequently less trouble will result. Sometimes tapering off the slope of the presser as shown by Fig. 4 is a help.

I have also found that a special needle put out by one of the needle manufacturers has removed a lot

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of plaiting trouble for me.

The left stitch cam plays an important part at times in plaiting trouble, and it should be ascertained on machines giving this trouble whether this cam is in good shape. Any nick or improper grinding of the downward slope of the cam will prove detrimental. It should be seen that the left side cam fits as closely as possible to the stitch cam, and that it is free from nicks. The setting of the left sinker cam should be checked, as well as the bumper screw. The rule for setting these cams is explained on page 27 in the "Knitting Kinks Hand Book," which is a premium book distributed by COTTON.

I would also suggest that it be seen that the walls in the inside sinker ring on the short butt needle side are *straight*. Be sure the short butt needles are in *perfect* alignment, and that the sinkers are uniform and not worn.

CONTRIBUTOR No. 4962.

Plaiting 5 Thread Over 120's on 42-Gauge

A set of comments on a particular problem and on the subject in general.

EDITOR COTTON:

I noticed where a contributor of yours stated in a recent issue that he would like to see some discussion as to the best practice in plaiting 5-thread, 15 turn silk over 120s gassed yarn, in the high splice, sole and toe on full-fashioned hosiery made on 42-gauge Reading machines. I will be glad to give him my experiences along this line.

Plaiting, on any make of full-fashioned machine, can cause a lot of trouble both in the high percentage of seconds and loss of production which may be attributed to machine trouble.

To properly plait, it is necessary to first have a soft flexible gassed yarn, evenly mercerized and the right count for the silk used. For example (this applies to a four- or five-thread stocking), not over 100s/2 or 120s/2 should be used on the leggers and 120s/2 in the sole and 100s/2 in the toe on the footers. These counts, with a good grade of cotton being used and a properly adjusted machine, will produce good results both in quality and production.

Regarding the machines, and starting with the oil cups, the felts must all be set at an even height to give an even tension. It is a good idea to place something in the cup so that the felts will not slip down and so that a fixer can tell if the knitter moves them. From the oil cups, the cotton passes through the tension rings and wires. Both rings and wires must at all times be kept clean, allowing free movement of the rings. The rings must be threaded correctly, as follows: With the thread going through both tension wires and rings, the top side of the rings should be toward the front of the machine, allowing free movement and enabling them to take up the slack when the snappers are open, which in turn causes the machine to produce a good selvage.

The cotton then goes from the rings through the snappers, which at all times should be clean. The snappers should be adjusted to hold the weight of the tension rings up when the snappers are closed. This is possible only when the felts in the cups are set at the proper height and the flat steel springs on the snappers are adjusted to grip the cotton.

The cotton passes from the snappers to the thread carriers. The carriers should at all times be adjusted to keep them as close to the sinker heads as possible and not too deep in the sinkers. Setting a carrier too deep will not help plaiting, but will break needles and bend sinkers. It is a common mistake to set carriers deep in the sinkers when a machine is making bad plaiting. The carrier should be adjusted in the following manner: Loosen both screws. Set carrier with tube resting lightly on top of sinker. Tighten one screw. Tap carrier gently with screw driver, knocking tube down between sinkers exactly in the center. The carrier is now set correctly for that side of the machine. The machine should now be run to the other side, and if the carrier does not fit exactly in the center of the sinkers, set the adjusting carrier stop screw in the carrier rack so that it does. The carrier should then be adjusted to the correct position.

The next and most important adjustment in plaiting is the lead of the carrier on the sinkers, meaning the carriers should not travel over nine or under seven sinkers ahead of the slurcocks. This can be checked by counting the sinkers from the carrier tube back to the sinker that is forced all the way forward by the slurcock. Too long a lead will give bad plaiting as it will throw the cotton under the silk, causing streaks in the work. Too short a lead will damage the machine, breaking and bending sinkers. The lead is set and adjusted by catalog part No. 2622 (Reading machine) with small block thereon. Rod No. 2622 is controlled by and attached to slur bar. The rod has a slotted groove in it through which four screws from the slurcock boxes fit. To adjust the rod, loosen nuts on these screws, which makes it possible to move the rod either way.

The rod adjustment is for lead one way and must be set first. The block on the rod is for the adjustment the other way and is set last. The rods and blocks control the raising and lowering of the arresting levers which release the carriers at the proper time.

If these directions are followed, the machine is now set to plait properly.

Sometimes bad plaiting is caused by a long needle, which will make a vertical streak; also, play between the carrier dog and the arresting lever will make a streak three or four needles wide on the inside selvage of the splicing, or the inside selvage of the sole. This is due to the fact that the plaiting carrier moves before its time. An uneven lead on the slurcock boxes will make bad plaiting. Individual sinker-heads should be checked to see that slurcocks are giving the sinkers the same lead in all heads. It is difficult to plait a French heel, which is only 28 needles wide, because if a machine does not run slow, the carrier will bound back, allowing the cotton to drop down under the silk. I have found the best speed to be about 35 courses per minute for leggers and 45 courses per minute for footers.

The dyer is also an important factor in plaiting. His co-operation in giving a good union will cover a

multitude of sins in plaiting.

I would also advise buying good cotton, and above all not to use too heavy a count, because, remember, a fat man cannot hide behind a thin man. Then too, the machine should be adjusted and kept adjusted; also, the felts should be free from cuts and set the proper height—the results will be good plaiting.

CONTRIBUTOR No. 4996.

EDITOR COTTON:

This is in answer to the inquiry of "CONTRIBUTOR No. 4973," who asked for some discussion as to the best practice in plaiting 5-thread, 15-turn silk over 120s gassed yarn, in the high splice, sole and toe on full-fashioned hosiery made on 42-gauge Reading machines.

We have had no difficulty in this operation. We find it only a matter of sinker lead. We run the 120s over a dry wick raised high enough to give a medium amount of tension on the 120s, and set the 120s carrier tube with a lead of about 11/16-inch ahead of the first sinker reaching its complete forward motion. The length of the re-inforced sinker butt may be used as a gauge for measuring the distance between the first sinker all the way forward and the carrier tube.

There is no hard and fast rule for the amount of carrier lead and this may be varied somewhat to suit the needs, but the gauge mentioned is approximately correct.

Sometimes the slur-cock is not correctly centered, and the sinker lead in one direction will be more or less in the opposite direction, which might cause misplaiting. In this case the slur-cock should be adjusted.

We have a set of 120s yarn dyed black for testing purposes. The black yarn will stand out very distinctly when it does not plait.

CONTRIBUTOR No. 4981.

Comments on Loose and Tight Sinker Streaks.

EDITOR COTTON:

I have seen quite a bit of discussion here lately in COTTON relative to loose and tight sinker streaks. I found this of a great deal of interest, for I have experienced difficulty along this line on numerous occasions.

In a large number of cases I have found that about the only way out has been to replace sinkers. Of course we all hate to do this, and in so many cases when we really should, we neglect doing it. It's really remarkable how at times we will hesitate when only a small amount is involved. It must not be the amount, but the principle of saving whenever we can that causes us at times to be entirely too "chinchy" for our own welfare.

In still other cases where we were having trouble with sinker streaks, we were able to overcome the trouble by just doing a good job of cleaning, and in others we found that a piece of tallow proved a wonderful aid.

Let's have some more discussion along this line. I am sure that all of us could use some good suggestions on the subject.

CONTRIBUTOR No. 4901.

EDITOR COTTON:

I noticed a very good article in the September issue by "A. C. (WIS.)" on stopping loose and tight sinker streaks. He brought out some mighty good points in this article, and offered some very good suggestions as to means of overcoming any difficulty along this line.

His article reminded me of an experience we had some time ago. We were having a large number of streaks, and we were sure that this trouble was due to loose and tight sinkers. So, with the object in view of eliminating all loose and tight sinkers, we set out to work. We tried everything we knew of in an effort to overcome the trouble, putting in new sinkers in a large number of instances, but after spending many laborious hours we found that our trouble was still with us.

We next decided to apply a little tallow to our needles and sinkers. Well, right there we got rid of a lot of trouble. The trouble was completely eliminated.

I just thought that it might be of help to mention this little incident, for I imagine that quite a few others run up against trouble at times that they attribute to one thing, when really it is another.

CONTRIBUTOR No. 4897.

How About Seamer Production?

How many stockings should a girl seam, and what is your idea about "re-seamers"?

EDITOR COTTON:

I would like to see some discussion in your "KNITTING KINKS" department as to what production a seamer with one year's experience should turn out per day on a four-thread chiffon full-fashioned stocking. Also, what should be the average number of stockings that a seamer should get back to be reseamed out of a daily production? I should also be glad to have some opinions as to whether these reseamers are turned back on account of not being properly matched at such points as the high heel and stripe in the welt, if any. We have had considerable trouble in our seaming department on account of too many stockings having to be returned to the seamer to be re-seamed.

CONTRIBUTOR No. 5023.

Causes of "Hairy" Needles.

EDITOR COTTON:

Back in the July 1930 issue, CONTRIBUTOR No. 4718" asked what causes "hairy" needles. This is a new term to me, but I imagine he means what causes needles that cause fuzzy streaks in the hose. I have found that there are several rather common causes for this, such as rough needles, loose rivets, etc., but one thing I have found that seems to me to be a little out of the ordinary is sinker heads being out of alignment. I have had several machines to make hose with fuzzy streaks that stood out like a sore spot, and upon lining up the sinker heads the trouble would be removed.

I hope this little suggestion will prove of some benefit to your inquirer.

CONTRIBUTOR No. 4910.

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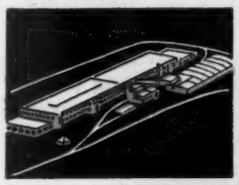

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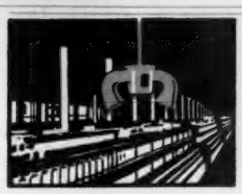

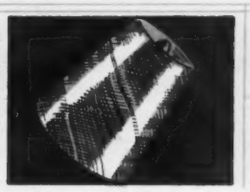

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The KNIT GOODS MARKETS

ALTHOUGH stocks of women's silk full-fashioned hosiery in mills had been reduced in March by around an indicated 1,000,000 dozen pairs, and notwithstanding shipments had increased by an indicated 90,000 dozens, the descent in retail prices has not been halted. Statistics of stock condition and gains in unfilled orders and shipments in March are from a compilation by the Department of Commerce of figures in the reports of manufacturers, and comparison is made with March of 1930.

Changes in the direction of a more wholesome situation also are indicated in a comparison of March and April of this year. At the end of March, stocks in mills aggregated around 2,884,390 dozens. This compares with 3,892,249 dozens reported to the Department of Commerce at the end of February, by 295 identical establishments representing 369 mills. One conclusion to be drawn from this showing is that the trade regards a stock of close to 3,000,000 dozen pairs in mill warehouses as excessive. It hardly could be urged that stocks in distributors' hands figure in the assumption of an unduly large surplus, for neither wholesaler nor retailer has in a long time been taking in goods at a rate to leave a suspicion that either is burdened with stock.

In recent disclosures during an investigation of the strike situation in Philadelphia and surrounding area it was brought out that numbers of non-union mills were paying the union scale of wages and competing with establishments paying lower rates. Subsequently, following announcement of the Berkshire Knitting Mills' cut as of May 1st and that of the Apex Hosiery Co. following, several manufacturers paying the union scale stated their prices were lower than those of the Berkshire following the May 1st cut, and had not been changed for some months. One of these mills reported selling full-time single-shift production, one operating day and night and shipping production to dealers, and the third selling the output of a somewhat curtailed force of operatives. The point is, each was paying a higher wage than the Berkshire and yet meeting the latter's prices. Some manufacturers paying less maintained they could not profitably compete with Berkshire.

An informal discussion at which the foregoing statements were confirmed raised a question as to whether further wage reductions in northern mills were likely. A very recent declaration by a leading mill in the Philadelphia section was to the effect that lower selling prices seemed likely. The executive commenting said he hoped no further changes would be made, although he confessed he was uncertain whether his mill would not have to make a cut to compete with the Golden Belt Manufacturing Co., Durham, N. C., and the Berkshire. If additional reductions shall be announced, they can be charged to the competition among retailers for a price representing an irreducible minimum.

59 Cents a Pair an Every-Day Price.

Retailers in the larger cities have established a 59-cent price for their lower bracket for both medium service and chiffon weights. This is a regular, every-day price with a number of shops. It forced others to battle for a price between 59 and 74 cents. An approach to such a figure was made a few weeks ago when John Wanamaker's Philadelphia store put on sale, for the first time for Wanamaker's, an eight-thread silk 42-gauge with mercerized hem and sole. It could be sold profitably for less, as some mills are quoting around $6.50 for eight-thread 42. Until quite recently an exclusive shop was exploiting a seven-thread 42 with satisfaction to the store and, apparently, a large part of its clientele. The consuming public may not yet be receiving the benefit of the lowest prices for hosiery. When it does, it may be reasonably assumed, increased consumption will follow and present production may not be greater than necessary for meeting market requirements.

The Golden Belt mill in Durham, N. C., and the Archer Hosiery Mills in Columbus, Ga., are conspicuous among southern hosiery mills which recently have been much in the limelight in the trade generally. The Archer mill is reported having been signally successful with irregulars of one of its leading numbers. The sub-standards cost certain large retailers $5.25 a dozen, according to a distributor for the mill, and were on sale specially for 64 cents a pair. They were distinguished by no brand, so that it is to be assumed customer critical inspection at the counter was satisfactory as to grade and construction. So far, attractive types of silk full-fashioned stockings have been available for special sales at a mark-up conforming to the arbitrary margin of profit for regular occasion.

Until well toward the end of June the hosiery markets will still be at their briskest, and in the opinion of old time operators in the primary field, there will be no radical departures from the May ruling rates for some weeks. As July and August are traditionally dull months, some elements in the trade would be little surprised if during those months prices sagged under an over-supplied market. This can be avoided, it is pointed out, if more mills will pursue the policy of a considerable number which, since the beginning of the year, have run their plants only so long as they had unfilled orders. In the Propper-McCallum group, it is related, the mills are operating to capacity and accumulating no stock. Their lines are sold under nationally advertised brands, at higher than the prices of most unidentified lines.

While well established brands are a most potent factor in maintaining volume of sales, it has been definitely established since the slump in hosiery set in that merchandising methods are no less a factor than brand; for some manufacturers whose product is sold in the open market unidentified, are among the better

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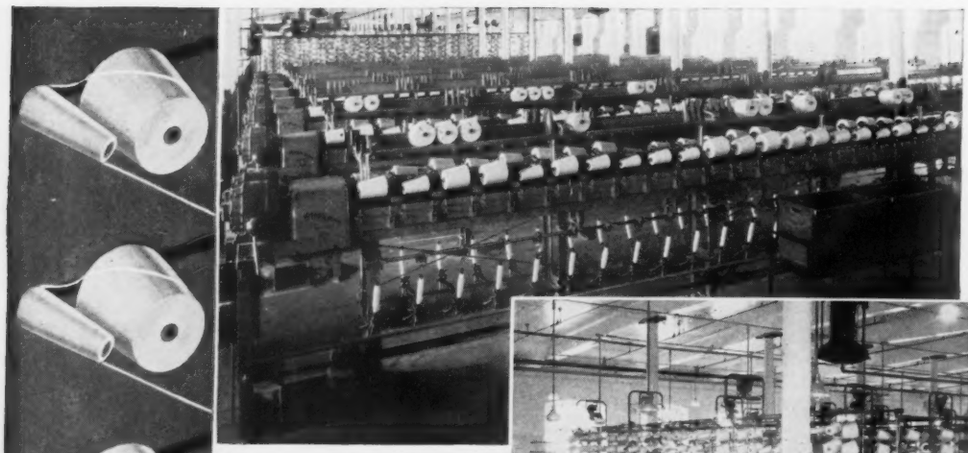

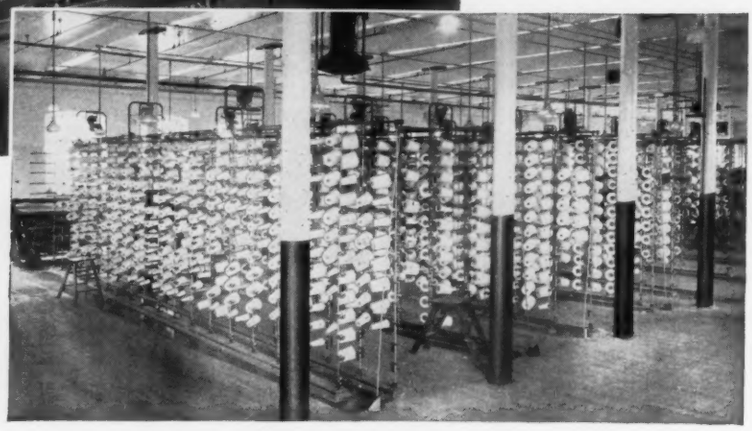

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Two cones are placed in a magazine creel, thus placing back of the warper 200,000 yards of No. 30's yarn. This quantity of yarn as a supply to the warper reduces the expense of creeling, as when a cone is exhausted another is tied in without stopping the operation of the warper. The imperfections have been removed from the yarn in the process of winding, and the yarn being delivered by absolutely uniform tension from the creel, insures as nearly perfect beams as can be obtained by any process.

UNIVERSAL WINDING COMPANY
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UNIVERSAL WINDERS

situated as to a steady flow of profitable orders. One such mill is the Lee I. Robinson in Philadelphia, operating day and night and short of production at times for promptly filling orders.

Some of the well known brands have suffered in value for their owners as a result of their appearance in special sales, at reduced prices. To overcome impairment of brand value from this cause, the William Brown Co., Philadelphia, last month introduced a line under an entirely new name—Lorient—the prices for the several numbers being given to only the company's trade and withheld from publicity. The line is in gauge 42- to 54-, and of three to 10-strand silk, according to the sales manager for the Lorient department exclusively, who states it is handled by a separate corps of salesmen, having no connection with the Brown Company's Granite brand. The arrangement, while providing for prices intended not to come in conflict with those for the Granite line, on the market for many years, is assumed to make the new line more readily salable by reason of the prestige enjoyed by the older line; a merchandise expediency that for a time should work out well for mills employing it with all the force of which it is susceptible.

New Type of Heel.

What is described as the miniature heel is the outstanding feature of a stocking which went on sale somewhat recently in several of the better department stores. A talking point is that the heel splicing is not visible when the stocking is in service. The stocking comes from a mill in Indianapolis, and is intended to reach the consumer at $1.15 a pair for 42-gauge and $1.95 for 48-gauge. As a conservative departure from the regulation French heel and cradle foot, it looks like a number that might have a right fair following. In any event, it seems a less doubtful proposition than the lace hem, which a few mills are producing on seamless machines and topping them on to full-fashioned legs. At least one manufacturer, a pioneer in the use of lace hems on the better grade hose, is applying it to mesh hose, a type of stocking appearing in a half dozen varieties as differentiated by dimensions and shape of mesh. A new one, just off the "griddle," is described as a "waffle" mesh. Its originator says it is designed for "spectator sportswear".

While possibilities of a wider margin of profit may be the explanation of much of the push that is seen back of mesh hosiery, it has a strong claim on consumer approval in that it is virtually free from the rings that frequently detract from the charm of a snug fitting regulation plain stocking on a limb of the contour that best advertises full-fashioned hose. It was stated at a counter in a well known shop that the larger the mesh the better the stocking sells. The store in question, displaying four numbers, had the larger mesh in the $2.95 bracket. Several of the remaining seamless mills in Philadelphia are having a right nice volume of business in net stockings, selling for 85 cents a pair and lower.

Mesh hosiery is one of the classifications not separately referred to in any of the surveys and reports of manufacturers. For the current season it might be classified as a staple, for the distributing trade does not for the present handle it as cautiously as novelties usually are treated. Some presumably well informed factors express doubt whether net stockings are as popular as their producers and numbers of retailers would have the public believe. They are in sufficiently good repute, however, to be the means of keeping some hosiery mills right busy at a time when a few well known plants are conveniently idle.

Full-Fashioned Most Trying Ordeal.

The full-fashioned hosiery industry is conceded generally to have experienced in the last twelve-month the severest ordeal which it ever had gone through, and which is believed to be nearing its end. It is common comment in the trade that there have been few failures, none of great moment, and that there has developed a condition which encourages some additional installation of equipment, in both existing and new mills. There has been little of scrapping of old or obsolete machinery, of which a great deal would appear destined to the dismantling process in a short time. This, it has been estimated, will proceed faster than replacement with new equipment, from which it is reasoned by some seers, there will be a rebuilding of the industry, along lines suggested by very recent experiences for a more flexible output.

It was pointed out at a recent auction of used but virtually new machines in Philadelphia that widely scattered bidders were interested in expansion, but disposed to go ahead guardedly, acquiring two broken-in machines for, practically, the price of one new one. It is cited as significant that in women's hosiery full-fashioned represents 36 per cent of the entire production of hosiery, all classes and descriptions, according to statistics for March supplied by the Department of Commerce. Net shipments, new orders and unfilled orders were in almost the same ratio.

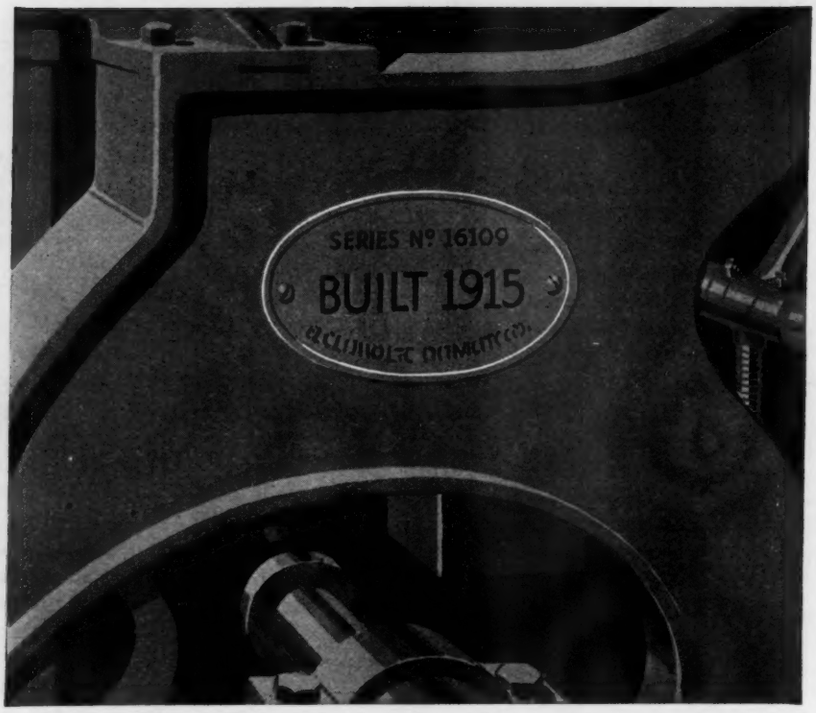
Men's full-fashioned stockings showed a better selling strength in March than in the like month of last year, while seamless registered a considerable gain.

Lively Business in Shorts Lines.

Two weeks were devoted by the Sport-Wear Hosiery Mills' formal opening in May of its lines for fall 1931. The company specializes in boys' golf hose and misses' and juvenile fancies, and lays claim to better grades and lowest prices it ever offered or quoted. Organized only a few years ago, the company, a Philadelphia organization, operating a branch mill in Bethlehem, Pa., boasts of always operating its plant day and night—never an idle day in about four years.

Sales at the recent opening were reported running ahead of the volume effected at the opening a year ago. The company pays strictest attention to styling, and this is the explanation for its success in building up a production of 4,000 dozen pairs a day, as stated by the president, Harry Belber. Boys' and misses' hosiery fetchingly styled are believed to represent this season's better guess in hosiery as a general class, and boys' golf probably are the more active item in this group. The markets for men's half-hose appear very much on the humdrum or routine order, with comparatively little in the matter of price to trouble sellers, but promise of keen competition in style.

Certainly it will run— but can you afford to run it?



HERE is a machine that still runs smoothly, still turns out merchandise, and the manufacturer thinks it is still making money for him! He forgets that the *physical* life of a machine has nothing to do with its *economic* life. He forgets that a modern machine operated at the same labor costs will turn out a *better product, faster and cheaper* than his present obsolete equipment could produce even when new.

We have facts and figures that will show you why other mill owners have modernized their plants with 1931 equipment. Let us discuss them with you.

TEXTILE MACHINE WORKS
Reading, Penna.

The "READING"
Full-Fashioned Knitting Machine

Underwear Markets Holding Up Resisting Further Price Decline

PRIMARY market underwear operators were a long time accommodating themselves to the lower level of prices for ribbed heavy weight cottons established by the P. H. Hanes Knitting Co. back in the last week in April. Manufacturers shrank from the idea of following Hanes into the lower price field, and jobbers made that reduction a pretext for deferred buying, affecting to believe other cuts would follow. Fall underwear therefore has been in slow movement, with a large element among sellers refraining from pushing for sales and buyers holding aloof in expectation of recessions.

The course of cotton supplied vindication for the holdbacks, and an apparent official statement of an executive of the Munsingwear Corporation early in May that "indications were the company would not make a favorable showing for the year," was believed to have a depressing influence. The Munsingwear executive was speaking to the stockholders and may have injected gloom into the picture of the future rather than hold out hopes of what he felt was in danger of not becoming a realization.

Developments as chronicled from time to time were favorable to a buyers' market. The Department of Commerce report of underwear output in March, indicating a material recession in March from the corresponding month of last year, was nevertheless a bullish showing, so far as it goes, as there was an indicated decline of more than nine per cent in stocks in mills, an increase of over 28 per cent in new orders booked and a five per cent gain in shipments. All of which, however, is passed over as meaningless while a deep-rooted opinion prevails that mills are turning out more heavy-weights than can be consumed. There are too many mills, to begin with, said a factor rating among the better known in the New York primary markets, who feels that even though there were 25 per cent potential production in the aggregate, the business to be had would still leave room for withering competition.

Important buyers feel that prices were none too high before downward revisions were started, practically all mills adjusting their rates, however, to those who led in the downward movement. Now that cuts have been made, values probably would be attractive enough to induce some early contracting, but for the fear of instability at even the drop levels. Unless mills take steps for removing all doubt that prices can be held, say buyers, there will be no stability, which, they assert, would mean no contracting until forced to make commitments.

Men's summer weights are being taken in by retailers in most conservative fashion, leaving wholesale distributors to string their orders along as temperatures dominate retail purchases. It is the impression of important traders that dealer buying of summer weights will be a continuous performance. While some are speculating on the outlook for medium weights, a majority element in the trade ignores them altogether, maintaining that there is no longer a medium weight season; that it is either heavies or light, and that much of the business in heavies is being lost to the popularity of shorts and shirts, and a sprinkling of medium weight union suits for winter.

Low prices for silk and for rayon—silk at the lowest level of value for all time—supply an explanation for this year's relatively light volume of business in women's cotton underwear, in the opinion of some of the quantity buyers for wholesale distribution. Rayon is cotton's sharpest competitor, but rayon underwear is not satisfactory from the distribution standpoint, as, it is stated, "the legitimate business in rayon's is 'shot to pieces' by inferior qualities of rayon," with which the markets are kept flooded. Unless the stores call a halt on sales of disreputable rayons, said a buyer of only the medium to highest grades, silk will automatically be restored to its former favor for underwear.

More Activity in Knitted Outerwear.

From the last to get started with production for the 1931 seasons, the knitted outerwear division of the knitting group of textiles attained to the position of first magnitude in matter of activity by May, when there were more busy plants than at any time since last fall. Knitted outerwear this year is a more diversified industry, since it is supplying to many of the leading retailers types of women's apparel which are not far emerged from the innovation period.

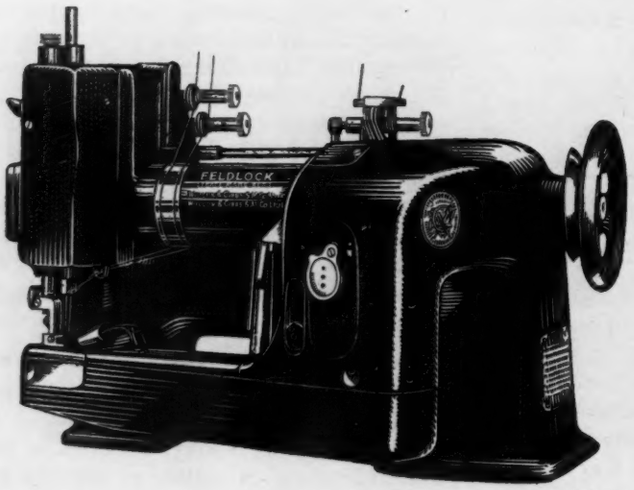
Knitted three-piece suits for women have become an important product, and it is perhaps noteworthy that the more costly items in this category appear to be giving manufacturers less trouble and yield a better margin of profit than most of the products which are made to fit low prices dictated by distributors.

In the last six months manufacturers in Philadelphia in particular have been exploiting knitted skirts, jackets and sweaters to an extent not contemplated as possible to maintain when the pioneers in this branch of knitted outerwear essayed the pure worsted garments. There are, however, relatively fewer of the pure worsted garments of such types than last year, for bouclet has stepped in as more appealing to the sports element, to which, obviously, must be credited the greater development of interest in the knitted ensemble.

For accommodating bouclet to varying price brackets, it embraces rayon, worsted in mixture with rayon —the latter predominating in the combination yarn— and cotton, a comparatively few mills using cotton except in combination. As the ensemble two- and three-piece suit is largely a matter of successful styling and production is in this respect still limited, substantial profits have thus far been possible. But the extent to which the pure worsted zephyr has yielded in consumer approval to other characters of yarns, notably bouclet, is serving as a reminder to intending newcomers in this for-the-present attractive field style is fickle as a sales promoter.

Extremes in Bathing Suits Profitable.

There are this season two widely separated classes of bathing suits that have made money for their producers. One is the extremely high priced; the other is the suit built for price and, therefore, heavy sales this year but probably few repeat orders for 1932. The



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cheaper suits, selling to distributors at $10 to $11 a dozen, made mass production feasible, and there appears no oversupply of this grade, while shipments have been large and quite a few mills operating to capacity and at times on day and night schedules. Bathing suits at $1.84 will doubtless be outstanding in the colorful scenes which will be presented on the beaches during the height of the surf bathing season.

It is the experience of a leading Philadelphia manufacturer who in several years has established a phenomenal business in the better grades of suits that his line intended to cost the bather a majority of the units of a five-dollar bill, is in far greater relative demand than the moderately priced. It is a two-ply yarn suit, the yarn is specially prepared and the sewing and finish are of an unusually high order. This line sells to only those retailers whose clientele gives only second consideration to price—value and style first. Returns because of defects and dissatisfaction with any one feature probably will be nil. In the case of many of the single yarn suits containing the lower grades of worsted yarns there may be a great many returns.

While mills making sweaters for the masses represent by far the greater production, there is developing a deeper interest in lines of the better and distinctive types. But orders for sweaters are not being detailed with becoming promptness, and because of the lateness of the season, mills are likely to have considerably less production than last year. Men's and boys' slip-ons in the popular price brackets are reported moving satisfactorily since manufacturers' salesmen last month began touring the trade with the second offerings for spring. Since style calls for more frequent changes than formerly, manufacturers have two spring seasons and two fall seasons. They seem to have fared well with the first spring showing, and the second is reported promising. The first of the offerings for fall did not cause much commotion among distributors. Another month will elapse before the second offerings for fall will be on the road from jobber mills. Not until then, perhaps, will there appear much encouragement for shakers.

Highly specialized fashioned golf hose of pure worsted, either as a separate item or in sets with knitted golf trousers, represent one of the very active fields in knitted outerwear, and afford another illustration of a tendency to higher standards.

Pre-Shrunk Cotton Yarns?

PRE-SHRINKING of cotton yarns for all purposes is being strongly advocated by Boger & Crawford, mercerizers, operating on an extensive scale in Philadelphia, and spinning cotton in Lincolnton, N. C. Mr. Boger, the surviving principal in the corporation, says he believes the time is not far distant when pre-shrunk yarns for cotton hems of women's silk full-fashioned and for cotton underwear will be specified in orders for the better types of goods. In fact, he says, pre-shrinking of woven fabrics, instead of stretching for increased yardage, will be insisted upon by buyers for the more representative establishments.

THE quickest and most economical way to get into production on new merchandise, is to send for the Brinton representative. Brinton makes circular Knitting machines of all kinds, for every purpose. Brinton engineers will help you select the precise Knitting machine you need — or will make it for you if necessary.

If one of the many types of Brinton Rib Knitting Machines or Open-top Jersey Knitting Machines, in all diameters, doesn't exactly suit your purpose—turn the Brinton staff of engineers, and the Brinton experimental department loose on your problem.

You'll get action—results—the machine you want.

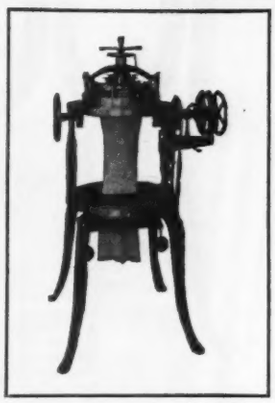
Ribbers — of every type.

Jersey Machines—Plain and Fancy stitches.

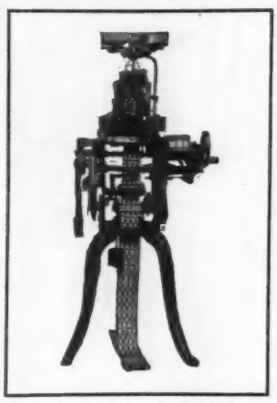
Rib body machines for underwear and bathing suits.

Sweater machines — Rib and Jersey Types.

Special Knitting Machines from ¼" to 36".



Plain Rib Body Machine



Trick Wheel Ribber

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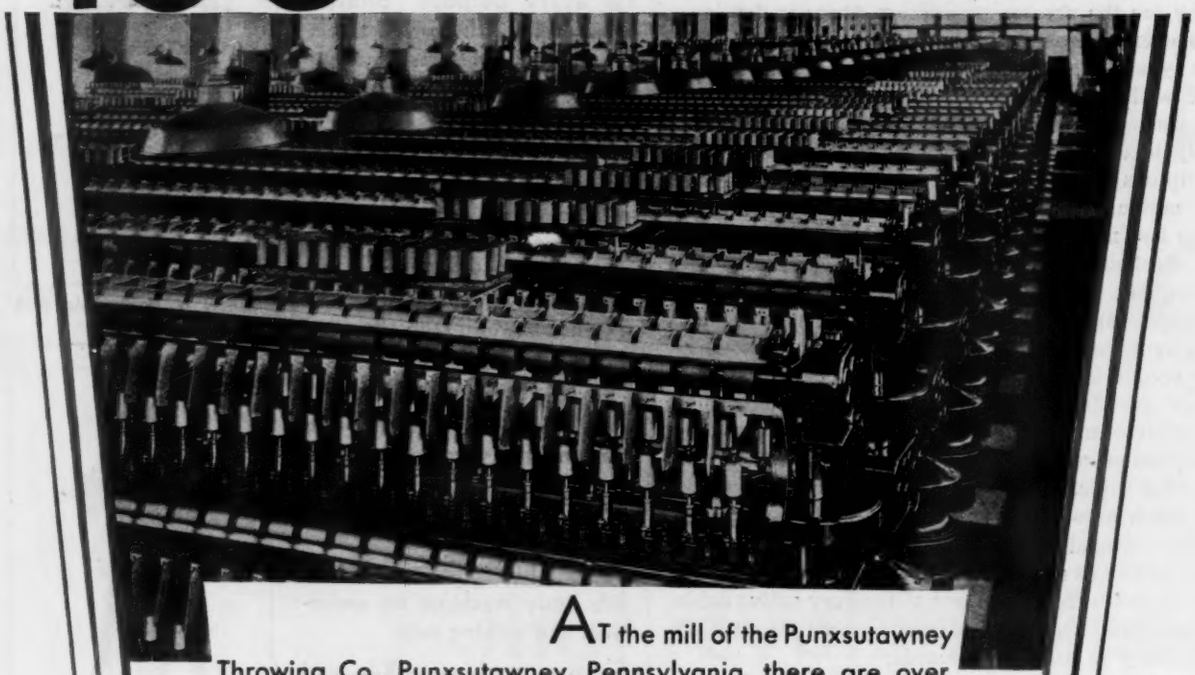
BRINTON (CIRCULAR KNITTING MACHINES)
of EVERY Kind for EVERY Purpose

AT PUNXSUTAWNEY

100% ATWOOD



AT the mill of the Punxsutawney Throwing Co., Punxsutawney, Pennsylvania, there are over 11,800 spindles in operation—100% Atwood.

The world's leading mills have thrown the bulk of the world's silk on Atwood machines for nearly a century. Recognized as standard for silk and rayon.

Specify ATWOOD and obtain proven quality and sound design.

THE ATWOOD MACHINE CO.

FOUNDED 1852

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General Sales Office: 267 FIFTH AVENUE, NEW YORK

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4770

A History of Hosiery Inspection

By Edward R. Ammon

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PART ELEVEN

THIS is the eleventh of a series of articles by Edward R. Ammon. The first article appeared in the August, 1929, number, the second in the September issue, the third in November, 1929, issue, the fourth in January, 1930, the fifth in February, 1930, the sixth in March, 1930, the seventh in April, 1930, the eighth in May, 1930, the ninth in August, 1930, and the tenth in November, 1930. Subsequent installments will appear in later issues.—The Editor.

WE NOW COME to the general inspection of the stocking. The manufacturers who first commenced to use the new type of inspecting machinery were overjoyed to be relieved of the blind narrowing stitch torment. They considered this phase of the inspecting problem of paramount importance and not much was expected of the other features that were invented.

In a short time, blind narrowing stitches were practically eliminated where the machines were introduced. Then the advantages of expanding the toe, heel and other parts of the stocking commenced to receive attention.

Careful analysis showed that inspectors had been missing a considerable percentage of defects. These should have been mended in the gray, but were finding their way to the pairing table unmended.

Dyeing and the stretch of boarding caused the defects to be greatly enlarged. This produced an unnecessary and persistent loss.

Inspectors had always missed defects, but in former days with heavy cotton stockings, runners were infrequent. The thick soft fabric did not get the display that hosiery today receives. Therefore, it made little difference whether the stockings were mended before or after dyeing.

However, in these days of chiffon silk, a runner deserves its name, and it really does run. It runs fast and far, and presents an altogether different problem from those that the old home-made wooden inspecting forms had to deal with.

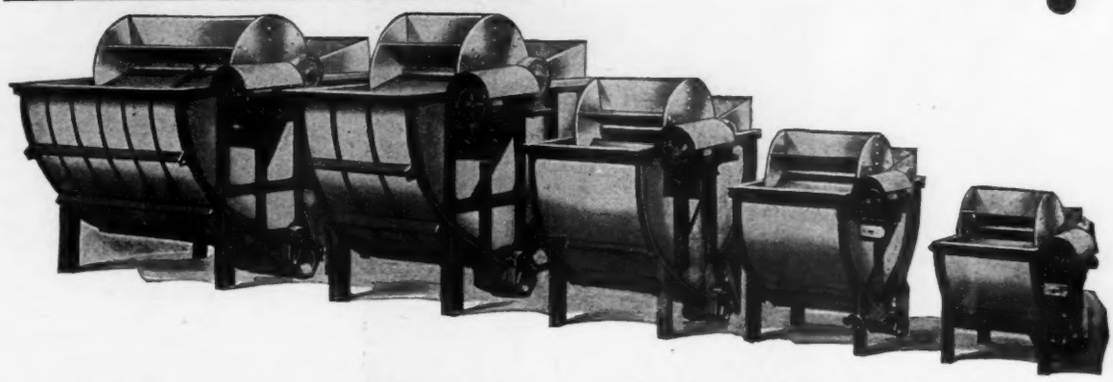
In comparison with the ancient cotton hosiery, the risk on a silk chiffon stocking of today is many times greater.

For instance, it sells for $12.00 per dozen up. This is six times the two dollars per dozen that the old two-pound combed peeler cotton stockings used to sell for.

This alone makes modern inspection six times more necessary today than it was in 1905. In addition, the stitches in the two-pound cotton stockings were almost impossible to make run. The only runners they had were when a needle didn't function and produced a drop stitch by knitting it.

Today's fabric seems to be always set ready to develop runners and instantly takes advantage of every opportunity. This greatly increases the need of a de-

Ready Now!



STRICKLAND MONEL METAL PADDLE DYEING MACHINE, Motor or Belt Driven, in a Sturdy Cast Iron Frame

Hosiery dyers will welcome the corrosion resisting cast iron frames, mono-cast side frames and cast iron angle end frames.

These frames are made extra heavy and rigid to reduce vibration. Motor, belt or chain drive at your option. Capacities 5, 10, 25, 50 and 100 lb. sizes. Other sizes built to order.

Write today for price and delivery.

STRICKLAND PATTERN WORKS
Chattanooga, Tennessee

SPECIFICATIONS OF THE MODE

Standard-Coosa-Thatcher Durene—a mercerized yarn of inherent quality—meets them all—with a wide margin—

There's Workability—so essential in keeping down costs

There's Soft Lustre—so attractive, so full of eye-appeal

There's Wearability—so economical—so irresistible to your buyers

Plus Marketability—Standard-Coosa-Thatcher Durene's own birthright.

WRITE FOR LATEST COLOR CARD

•

STANDARD—COOSA—THATCHER COMPANY
CHATTANOOGA, TENN.
Executive and Sales Office: Lafayette Bldg., Philadelphia, Pa.

Durene
STANDARD COOSA THATCHER

vice that will expose defects without causing runners.

A properly constructing inspecting machine will expose weaknesses in the stocking, in any place. When the hosiery is sent out, there need be no fear that weak places or concealed stitches will develop..

Finding everything in the gray insures the manufacturer against loss. The defect will not tear out later. It will not only stand boarding, but normal wear by the customer.

Due to the many operations that combine to complete the foot of a full fashioned stocking, there are many opportunities for weak places to exist around the foot.

Concealed weaknesses, around the foot are discovered with great ease. The manufacturer can, for practical purposes, feel that the product which he ships out is free of concealed torment.

An Elastic Yarn

LASTEX, an elastic yarn, distributed solely in the United States by Adamson Brothers, New York, is being offered in Philadelphia by Percy A. Legge, distributor of worsted yarns, who is sole representative in Philadelphia and Boston. Mr. Legge states the yarn is attracting much attention from manufacturers of men's half-hose who are experimenting with it as a support, knitted in and intended to supersede garters. Elastic cotton yarn is obtained by coving, by a patented process, a core of virgin rubber with cotton yarn and in like manner silk, rayon and spun silk elastic cord are obtained, in diameters equivalent to 4-thread silk. Lastex has been adapted to the knitting of surgical hose and girdles in experimentation for the Legge yarn house.

Among the Knitting Mills

THE ARCHER HOSIERY MILLS, Columbus, Ga., have practically completed the extensive improvement program they began sometime ago. The entire program involved an expenditure of approximately a quarter of a million dollars. Machinery has been installed to manufacture full-fashioned hosiery and a new addition has been added to the plant to accommodate this.

The McDonough Hosiery Mills, McDonough, Ga., state they are now operating at full capacity, with a good supply of advance orders that will carry them well into the summer.

It is reported that Messers. B. C. and C. W. Mayo have started the operation of a new knitting mill to knit misses' and children's hose. Cotton, mercerized and rayon material are used in the manufacture of the hose. The plant is in the building formerly occupied by the Tarboro Knitting Mills.

Southern Mercerizing Co., Tryon, N. C., are installing 46 Banner machines, purchased from the Hemphill Co., Pawtucket, R. I., and 60 Model K knitting machines, purchased from Scott & Williams, Inc., of New York City.

The Champion Knitting Mills, of Chattanooga, Tenn., and the Marietta (Ga.) Knitting Mills recently merged, both mills now operating under the name of Champion Knitting Mills. Champion hosiery will be manufactured in the Marietta mill.

The Asheville Hosiery Co., Asheville, N. C., are adding a dyeing and finishing department at a cost of $90,000, according to recent announcement. This will give employ-

COOPER QUALITY
LATCH NEEDLES
WITH
NON TURNABLE

RIVETS
CHARLES COOPER CO., INC.
BENNINGTON, VERMONT, U. S. A.
G. W. MORTON, Southern Representative
1903 Friendly Road, Greensboro, N. C.

Who else wants QUICKER box service

From our 5 SOUTHERN PLANTS
Right in the heart of the Southern textile district are five centrally located Old Dominion box plants, to give you quicker service, lower freight rates and quality boxes that stand second to none. We are the largest producers of paper boxes in our particular line in the United States and are in position to fill your requirements for boxes with special design wraps on short notice. Let us quote you on your next order, there is no obligation.
OLD DOMINION BOX COMPANY, INC.
Lynchburg, Va.
Winston-Salem, N. C. Burlington, N. C. Ashboro, N. C. Charlotte, N. C.
quality OLD DOMINION Paper Boxes

QUITEX
SPUN RAYON

Justly so, many textile manufacturers look upon the Quissett Mill as a part of their own organization.

They find that deliveries of the new Quitex Spun Rayon synchronize with their production schedules regardless of volume. Here at Quissett Mill, men and machines work for you just as though they were in reality a part of your own plant.

Let us send you samples of the new Quitex Spun Rayon.

Quissett Mill
New Bedford, Mass.

Wm. M. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent.

QUISSETT MEANS QUALITY

SILK HOSIERY FINISHES

BROSCO DULL FINISH-FINISHING COMPOUND S. P.

BROSCO SCROOP OIL

Can be used alone or in conjunction with one another to produce any desired feel and finish.
Does not shrink or tighten up the fabrics.

SCHOLLER BROTHERS, INC.
Amber & Westmoreland Streets
Philadelphia, Penna. Since 1907

SCHOLLER BROTHERS, LTD.
St. Catharines, Ontario
In Canada Since 1927

Pioneers and Leaders in Rayon Weaving

The pioneers and leaders in rayon weaving are Loper clients. They have found our textile cost system especially adapted for accurately figuring advance costs on fancy and rayon fabrics.

A request will bring you
the names of these mills.

RALPH E. LOPER & CO.
INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 18 Years
FALL RIVER, MASS. GREENVILLE, S. C.

FOR THE SHIPPING ROOM

STENCIL MACHINES

OIL STENCIL PAPERS

A. J. BRADLEY MFG. CO.
101 BEEKMAN ST., NEW YORK

ment to approximately 100 persons.

Operations have been greatly increased at the Baker-Moise Hosiery Mills, Dallas, Texas, as two shifts are now being run daily.

The erection of an additional building was recently started by the Hoover Hosiery Co., Concord, N. C. This will enable the mill to double the present capacity. The mill is operating a full day and night schedule.

It has been reported that Clark Hutton, Nashville, Tenn., is arranging for the sale of the Cadet Hosiery Co.

References

EDITOR COTTON:

I once knew of a man who, upon being asked for references when applying for a job as a sawyer at a saw mill, replied: "I haven't any, but if you will lend me your saw a few minutes I will saw you out some." The mill at this time needed a sawyer rather badly, so they decided to give him a chance. Now, this fellow could really saw, so it was only necessary for the foreman to watch him a few minutes before he made up his mind to give him the job.

By this, I am not trying to detract from the value of having good references, but merely trying to show that ability is what really counts in the long run. A person's references may help him to get a job, but they will not be a wonderful aid in helping him to hold that job. In fact, I believe that in some instances good references have hurt fellows more than they helped them. I know of some few cases where good capable men were unable to measure up to what was expected of them on account of the concern they had left furnishing such unusual references. They would have been much better off if it had been necessary for them to have gone to work and sawed out some references.

There have been numerous instances of fellows being given good recommendations around a cotton mill who did not deserve them. They are too often given through friendship. The writer once hired an overhauler, who had the best references I have ever seen. They stated that this man was a first-class overhauler and knew his business, which he did, but there was one thing they left out, and that was how doggone lazy he was. This certainly did not cause me to think any more of the people who recommended him, for regardless of how much a man knows, if he is lazy he is not worth a d——. My idea of a very unfortunate individual is one who knows how to do things, but is too lazy to do them. He is much worse off than the fellow who knows nothing but is willing to try and learn.

There are a lot of men running sections in the mills that know enough to be overseers, and would be if they only had it in them to put into practice what they know. They are just down-right lazy and never do anything to improve their job unless the overseer makes them. The one thing that they do well is to keep the seat of their trousers shiny by sitting on the work bench. There has never been a setting hen as faithful to her nest as some section men are to their work benches. Now, any fixer who is really smart and is not too faithful to his work bench, has a great chance to become an overseer, and after becoming an overseer has a chance to become a superintendent.

J. T. D. (MISS.)

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and wooden boards.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.

Milady is Fastidious

Women have asked why beautiful hosiery or lingerie frequently possesses an unpleasant odor when the box is opened.

This is due to a deterioration of the finishing chemicals as the goods laid in the stores or the mills. You can eliminate this by using

Quaker FRAGRANTOL

an oil which finishes and deodorizes in one process, assuring your goods of a clean, sweet odor at all times.

Formula and full particulars will be furnished upon request.

QUAKER CITY CHEMICAL CO.
DIVISION OF
O. F. ZURN CO.
Philadelphia, Pa.
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The YARN MARKET

Philadelphia, May 18th, 1931.

CONTRACT YARNS remaining undelivered and the theoretical owners refraining from supplying shipping details constitute one factor in the prevailing quiet in the Philadelphia cotton yarn trade. Some adjustments have been effected by sellers relieving certain customers of a part of their obligations, and these efforts at restoring the status quo in seller-customer relations has in some extent eased matters for a few dealers. But they do not put back of their sales efforts the push that is necessary to keep transactions following one after another. And manufacturers having been once "burned" with contract yarns and suffered cancellations of orders from their customers are too much disposed to let matters go by default.

Buyers say cotton is too high for them to operate in yarns. When the pinch comes, these same buyers will cover and likely pay prices which they had regarded as too high. But many of these same buyers are not calling in contract yarns, and may be doing some buying from others than those who are wearing out patience in waiting for the moving of yarns long past due to manufacturers.

Manufacturers have been suspicious that dealers were selling yarns short. This would appear ridiculous, since sending a telegram to a spinner and receiving a reply by the yarn merchant consumes a comparatively few minutes, the seller thus having facilities for buying for his customer while the latter is haggling over a difference of a quarter to a half-cent in the price.

The sales yarn trade, generally, insists that stocks of the most needed yarns are light. While manufacturers were bidding on the basis of 16 to 16½ cents for singles coned, around the middle of May, several dealers were advised by their respective mills of an advance of a half cent in their prices, to 17, and at once tried to raise their quotations accordingly. They did not succeed in this, as shoppers managed to locate some house with more stock yarn that others were holding. There apparently is no great stock of available carded yarn, but what accumulations exist are not well distributed.

A Philadelphia house, handling the product of several southern spinners, within a month reduced its stock of yarn from one of its mills—not a large one—by more than 50 per cent and, it was related at the time, the mill then was and for some time had been operating to capacity, full time, and accumulated no yarn, The business was satisfactory as to volume but unsatisfactory as to operating profit.

Underwear carded yarns came into somewhat better call toward the end of May, and from the fact that manufacturers of medium weights had at that time taken very little business, there seemed a probability of a fair weight of 16s to 20s moving shortly. But, it is reasoned, the medium weight season, starting when summer lines were at the beginning of their greater movement, held out no fabulous promise of much of importance to yarn interests. Coarser counts, for heavy weights, have been most inactive.

Combed yarns were rated relatively stronger than carded, as June loomed, but this, it was intimated by some interests, may have been attributable to reports of a merger of strong southern mills in which a powerful group was said to be a dominating factor.

The weaving trades are believed by many observers on the side lines to be taking in more cotton yarn than in conceded by dealers generally. There is common complaint of slow trading, but it seems to some that these reports may be exaggerated or that, accustomed to selling large lots, the aggregate that may be piling up for a given time is overlooked in the sales of a few cases each, invariably for spot shipment, supporting the proposal stocks are light. Further testimony for this view is, of course, the drop of around 950,000 bales consumed to May 1st, compared with the corresponding period ending last year.

Philadelphia prices on May 16th follow:

Single Skeins.

4s to 8s	16	10s	16½
12s	17	14s	17½
16s	18	20s	19½
24s	21	26s	22
30s	23		

Single Warps.

10s	17	12s	17½
14s	18	16s	18½
20s	19	26s	22½
30s	23½		

Two-Ply Skeins.

8s	16½	10s	17
12s	17½	14s	18
16s	18½	20s	18½ @19
24s	21½	26s	22½
30s	23½	40s	30½ @31½

Two-Ply Warps.

10s	17½	12s	18
14s	18½	16s	19
20s	19	24s	22
26s	23	30s	24 @24½
40s	31½ @32½		

Frame Spun Carded Yarn on Cones.

8s	16	10s	16½
12s	17	14s	17½
16s	18	18s	18½
20s	19	22s	20
24s	21½	26s	22½
30s	23½	40s	30½ @31½
30s dbl carded	27 @27½	30s tying in	23

Carpet Yarns.

8s and 9s white warp twist	18
8s tinged tubes	16½
8s part waste	15

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	30 @31	20s	31 @33
24s	34 @35	30s	35 @37
40s	38 @39	50s	44 @45
60s	49 @50	70s	60 @61
80s	71 @73		

Single Combed Peeler Yarns on Cones.

18s	27½	24s	31½ @32½
30s	34½ @35½	36s	36½ @37½
38s	37½ @38½	40s	38½ @39½
50s	43½ @44½	60s	48½ @49½
70s	60½ @61½	80s	70½ @73½

Mule Spun Carded Yarn on Cones.

10s	22	12s	22½
14s	23	16s	23½
18s	24	20s	24½
24s	27	26s	28
30s	29	40s	36½

Mule Spun Combed Peeler Yarn on Cones.

10s	29	12s	30
14s	31	16s	32
18s	33	20s	35
22s	36	26s	37
28s	38	30s	39
36s	42	38s	44
40s	45		

Tinged Insulating Yarns.

8s-1	15½	8s-2	16
10s-1	16	10s-2	16½
12s-1	16½	12s-2	17
		30s-2	21½ @22
		20s-2	18½ @19